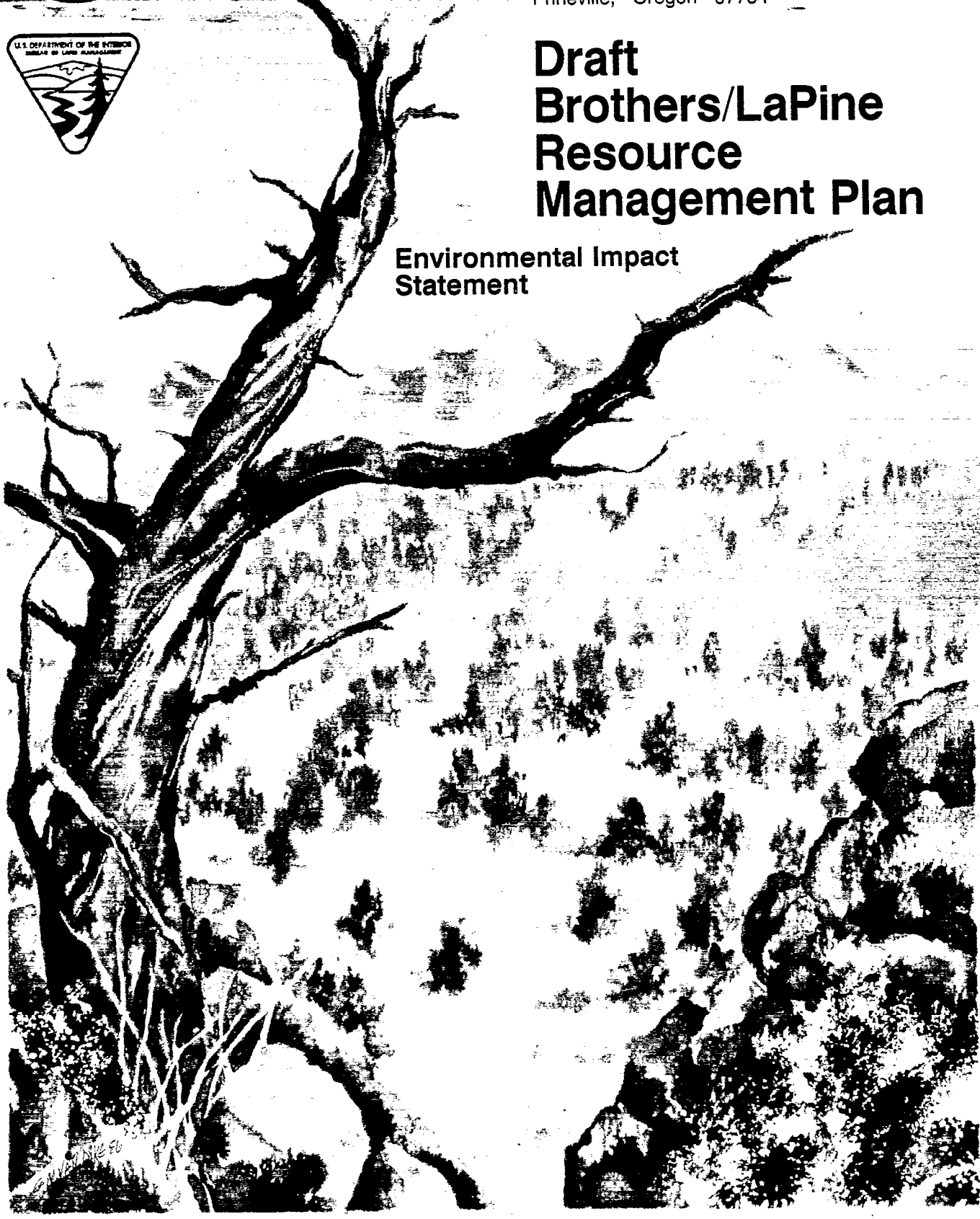
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

Prineville District Office
185 East Fourth Street
Prineville, Oregon 97754

October 1987

Draft Brothers/LaPine Resource Management Plan

Environmental Impact Statement



UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT
PRINEVILLE DISTRICT OFFICE
P.O. Box 550 (185 East 4th Street)
Prineville, Oregon 97754

October 5, 1987

Dear Public Land User:

You are invited to assist the Bureau of Land Management in a planning process that is important to you and your interests

We ask for your participation in evaluating this draft of the Brothers/LaPine Resource Management Plan/Environmental impact Statement (RMP/EIS) that has been prepared in conformance with planning procedures established under the Federal Land Policy and Management Act of 1976.

The planning area encompassed by this document is the southern half of BLMs Prineville District including the LaPine area. Each of the options or alternatives presented prescribe the direction for management of resources on public lands for the next 10 to 15 years. Each of the alternatives-including the preferred alternative--relates to issues many of you have helped us to identify.

There are six resource management alternatives, each with a different emphasis. Public comment was considered in developing and analyzing issues and alternatives in this RMP/EIS. Also considered was information supplied by local governments, known interest groups, and data gathered from staff discussion. Before the preferred alternative was developed, suggestions were thoroughly considered to leave management practices just as they are; to emphasize commodity production: to protect natural values while still accommodating the production of commodities; to produce commodities while accommodating natural values and to completely protect and enhance natural values.

The alternatives were designed primarily to resolve, in different ways, the land management issues identified in the early stages of the planning process.

The BLM has tentatively established: resource management goals and objectives; potential land uses; levels of resource production: land areas that can be used for multiple purposes; and lands that should be transferred, sold or exchanged.

The end product will be a Resource Management Plan (RMP) or land use plan for the 1 .1 million acres of public lands in the Brothers LaPine Planning Area. When completed, this plan will establish specific land use allocations for recreation, areas of critical envr'ronmental concern, wild horses, minerals, land tenure adjustments, and public access on BLM managed land in the entire planning area.

In the LaPine area only, livestock grazing, forestry, wildlife habitat, watershed and riparian management will also be considered. Problems or issues relating to the management of livestock grazing, forestry, wildlife habitat, watershed, and riparian resources in the Brothers portion of the planning area were addressed and resolved in the Brothers Management Framework Plan completed in 1982; and the Brothers Grazing Management Environmental impact Statement and Rangeland Program Summary completed in 1983. Decisions made in these documents are in compliance with current planning regulations and are still valid.

We would appreciate you reviewing this document and giving us your written comments by January 4, 1988. BLM employees will be available at informal public meetings to be held during the 90 day public comment period. Meetings will be held in Prineville on Monday, November 2, 1987, at 7:00 p.m. at the Catholic Parish Hall; in Bend on Wednesday, November 4, 1987, at 7:00 p.m. at the Riverhouse Motor Inn, and in LaPine on Thursday, November 5, 1987, at 7:00 p.m. at the Community Center for individuals wishing to ask questions or to present comments.

Thank you for your interest and your help in this planning effort. We anticipate your continued interest, support and participation.

Sincerely yours,

James L. Hancock
District Manager

U.S. Department of the Interior
Bureau of Land Management

Draft Brothers/LaPine Resource Management Plan

Environmental Impact Statement

Prepared by
Prineville District Office
October, 1987

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Brothers/LaPine Resource Management Plan and Environmental Impact Statement

Draft (X) Final ( ) RMP/EIS
Department of the Interior, Bureau of Land Management

1. Type of Action: Administrative (X) (Legislative ( )

2. Abstract: This Draft Resource Management Plan/Environmental Impact Statement discusses resource management on 1,115,087 acres of public land administered by the Bureau of Land Management in the Prineville District. The Preferred Alternative proposes to harvest timber on 34,929 acres with an accelerated harvest level of 8 million board feet (MMbf); forage allocations for livestock would increase to 16,000 AUMs; wildlife habitat would be maintained or improved. A total of approximately 28,000 acres of public land would be considered for sale over the planning period: and cultural, soil, water, botanical, visual and recreational resources would be protected.

3. Six alternatives are analyzed:

A. Emphasize Commodity Production and Enhancement of Economic Benefits
B. Emphasize Commodity Production while Accommodating Natural Values
C. Continue Existing Management (No Action)
D. Preferred Alternative
E. Emphasize Natural Values While Accommodating Commodity Production
F. Emphasize Natural Values

4. The comment period will be 90 days, ending January 4, 1988.

5. For further information contact:

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Summary

Six multiple use alternatives for the management of public lands in the Brothers LaPine Planning Area have been developed and analyzed in accordance with the Bureau's planning regulations issued under authority of the Federal Land Policy and Management Act of 1976.

The alternatives respond to major issues identified through the planning process. They include the management of forestland. livestock grazing. wild horses. wildlife habitat fire, recreation, areas of critical environmental concern. land tenure and minerals. The purpose of the alternatives is to present and evaluate various options for managing, protecting and enhancing public resources.

Each alternative is a master plan that would provide a framework within which future, more site specific decisions would be made, such as defining the intensity of management for various resources, developing more site specific activity plans or issuing rights-of-way, leases or permits.

The six alternatives considered are:

Alternative A — (Emphasize Commodity Production and Enhancement of Economic Benefits)

1. Harvest 16 to 18 MMbf of timber annually for 6 years in the LaPine portion from 2,000 to 3,500 acres.
2. Allocate up to 19,697 AUMs of forage to livestock in the LaPine portion.
3. Remove wild horses from the area in which they now roam.
4. Meet minimum wildlife habitat requirements in accordance with existing BLM policy.
5. Provide aggressive fire suppression for 800.000 acres. Desrgnate 300,000 acres as conditional suppression and fire use areas.
6. Limit off-road vehicle (ORV) use on 7.000 acres: close 1,740 acres to ORV use. Remaining acres open to ORV. Expand Millican Valley ORV area to 85,000 acres. Manage 51.280 acres (10 high-to-moderate quality areas) for rockhounding.
7. Designate Horse Ridge Research Natural Area (RNA) and five additional areas totalling 1,560 acres as Areas of Critical Environmental Concern (ACECs).
8. Maintain or increase public land holdings in Zone 1 (areas having national or statewide significance as shown in Maps 4 & 5). Sell public land in agricultural use or within the LaPine core area. Transfer to local governments or exchange public land near Bend, Redmond and Prineville to accommodate community expansion,
9. Public lands would remain open for exploration (including geophysical) and development of mineral resources and related rights-of-way. Fluid mineral leasing would continue with the entire federal reserved mineral estate and 1.115.087 acres of public land open to exploration. subject to standard lease requirements and stipulations. The restrictive no surface occupancy (NSO) stipulation for fluid minerals exploration and development would be removed.

Alternative B — (Emphasize Commodity Production While Accommodating Natural Values)

1. Harvest 12 to 14 MMbf of timber annually for 7 years in the LaPine portion from 1.500 to 2.500 acres.
2. Allocate up to 16,000 AUMs of forage to livestock in the LaPine portion.
3. Manage wild horses for an average herd size of 15. Allow wild horses to roam a 25.000 acre area.
4. Manage for 50 percent of optimum wildlife habitat diversity.
5. Provide aggressive fire suppression on 700.000 acres. Designate 400,000 acres as conditional suppression and fire use areas.
6. Limit off-road vehicle (ORV) use on 39.899 acres: close 5.240 acres. Remaining acres open for ORV use. Expand Millican Valley ORV area to 61,000 acres. Manage 47.180 acres (6 high to moderate quality areas) for rockhounding.
7. Designate Horse Ridge Research Natural Area and nine areas as ACEC's (35,556 acres).
8. Maintain or increase public land holdings in Zone 1. Consider exchanges in Zone 1 if lands with even higher public value could be acquired. Authorize existing agricultural use. Sell or lease public land in the LaPine core area. Transfer to local governments or exchange public land near Bend, Redmond and Prineville as needed to accommodate community expansion.
9. Public lands would remain open for exploration (including geophysical) and development of mineral resources and related rights-of-way. Fluid mineral leasing would continue with the entire federal reserved mineral estate and 1.1 15.087 acres of public land open to exploration, subject to standard lease requirements and stipulations. The restrictive no surface occupancy (NSO) stipulation for fluid minerals exploration and development would be removed.

Alternative C — (Continue Existing Management - No Action)

1. Harvest 7 to 9 MMbf of timber annually for 10 years in the LaPine portion from 1,000 to 1.400 acres.

2. Allocate 3.301 AUMs of forage to livestock in the LaPine portion.

3. Allow the wild horse herd size to be controlled by natural events. Allow wild horses to roam a 17,000 acre area.

4. Manage for 50 percent of optimum wildlife habitat diversity.

5. Provide aggressive fire suppression for approximately 1 ,000.000 acres. Manage 107.000 acres as conditional suppression and fire use areas.

6. Limit off-road vehicle (ORV) use on 204,858 acres: close 4.615 acres to ORV use. Remaining acres open for ORV use. Millican Valley ORV area remains at 60.000 acres. Manage 45.160 acres (4 high quality areas) for rockhounding.

7. Designate Horse Ridge Research Natural Area totalling 600 acres as ACEC. Designate no other ACEC's.

8. Retain Zone 1 lands. Consider exchange of Zone 2 and 3 lands for land with higher public values. Authorize agricultural use where no significant resource conflicts occur. Sell or lease public land within the LaPine core. Transfer to local governments or exchange public land near Bend. Redmond and Prineville as needed for community expansion.

9. Public lands would remain open for exploration (including geophysical) and development of mineral resources and related rights-of-way. Fluid mineral leasing would continue with the entire federal reserved mineral estate and 750,467 acres of public land open to exploration subject to standard lease requirements and stipulations. A no surface occupancy stipulation on 16,480 acres around Prineville Reservoir and seasonal restrictions on 44,580 acres of deer wintering areas and 3,560 acres of sage grouse strutting grounds would continue. Restrictions to protect 300,000 acres of land that are visually sensitive or of high scenic quality would be continued.

Alternative D — (Preferred Alternative)

1. Harvest approximately 7-9 MMbf of timber annually for 7 years from 1 ,000 to 1,400 acres in the LaPine portion.

2. Allocate up to 16,000 AUMs of forage to livestock in the LaPine portion.

3. Remove all wild horses.

4. Provide optimum habitat diversity for wildlife.

5. Provide aggressive fire suppression for 500.000 acres. Designate 600.000 as conditional suppression and fire use areas.

6. Limit off-road vehicle use on 267,076 acres: close 10,722 acres to ORV use. Remaining acres open to ORV use. Expand Millican Valley ORV area to 65,000 acres. Manage 47,180 acres (6 high to moderate quality areas) for rockhounding.

7. Designate Horse Ridge Research Natural Area and 14 areas totalling 36,916 acres as ACEC's. Designate three areas totalling 1,565 acres as RNAs.

8. Maintain or increase public land holdings in Zone 1 and 2. Exchange or sell Zone 3 lands if they meet FLPMA criteria. Authorize agricultural use of public land if no conflict with public values exists. Exchange. lease or sell land in the LaPine core area. Transfer to local governments or exchange public land near Bend, Redmond and Prineville as needed to accommodate community expansion.

9. Public lands would remain open for exploration (including geophysical) and development of mineral resources and related rights-of-way. Fluid mineral leasing would continue with the entire federal reserved mineral estate and 750,467 acres of public land open to exploration subject to standard lease requirements and stipulations. A no surface occupancy stipulation on 16,480 acres around Prineville Reservoir and seasonal restrictions on 44,580 acres of deer wintering areas and 3,560 acres of sage grouse strutting grounds would continue. Restrictions to protect 300.000 acres of land that are visually sensitive or of high scenic quality would be continued. Exceptions to the no surface occupancy and visual restriction would be evaluated using the following criteria:

   (1) Evidence of exploration or similar activities would not be visible from the surface of Prineville Reservoir or other high public use areas such as county roads, state and federal highways, recreation areas or communities within the planning area.

   (2) All activities involving exploration would use existing roads to the fullest extent possible.

   (3) Any proposed exploratory drilling pad or road construction for access to a drilling site would be sited to avoid canyon slopes, areas with highly erosive soils and areas of high visibility. In these areas roads and drilling sites would be fully rehabilitated when operations have been completed.

(4) All activities would be carried out so as to maintain or enhance soil stability.

Alternative E — (Emphasize Natural Values While Accommodating Commodity Production)

1. Harvest 7 to 9 MMbf of timber annually for 8 years in the LaPine pprtion from approximately 1,000 to 1.400 acres.
2. Allocate 2,996 AUMs of forage to livestock in the LaPine portion.
3. Manage for a wild horse herd size of 50. Allow horses to roam a 25,000-acre area.
4. Provide optimum wildlife habitat diversity.
5. Provide aggressive fire suppression on 500,000 acres. Designate 600.000 acres as conditional suppression and fire use areas.
6. Limit off-road vehicle (ORV) use on 276,996 acres; close 12,102 acres to ORV use. Remaining acres open to ORV use. Millican Valley ORV area reduced to 53,000 acres. Manage 42.600 acres (2 high quality areas) for rockhounding.
7. Designate Horse Ridge Research Natural Area and 12 additional areas as ACEC's totalling 36.916 acres. Designate three areas totalling 1,565 acres as RNAs.
8. Maintain or increase public land holdings in Zones 1 and 2. Exchange or sell Zone 3 lands for higher public value lands. Authorize agricultural use only where no significant conflicts with other uses of the public land occur. Some tracts of public land would be available for lease or sale in the LaPine core. Exchange public land near Bend. Prineville and Redmond as needed to accommodate community expansion.
9. Public lands would remain open for exploration (including geophysical) and development of mineral resources and related rights-of-way. Fluid mineral leasing would continue with the entire federal reserved mineral estate and 750.467 acres of public land open to exploration subject to standard lease requirements and stipulations. A no surface occupancy stipulation on 16.480 acres around Prineville Reservoir and seasonal restrictions on 44,580 acres of deer wintering areas and 3.560 acres of sage grouse strutting grounds would continue. Restrictions to protect 300.000 acres of land that are visually sensitive or of high scenic quality would be continued. No exceptions to the protective stipulations would be allowed.

Alternative F — (Emphasize Natural Values)

1. No commercial timber harvest would occur on the public lands in the LaPine portion.
2. No livestock grazing would be allowed on the public lands in the LaPine portion.
3. Remove all wild horses.
4. Manage wildlife habitat diversity at optimum condition for migrating deer and at slightly less than that for other species.
5. Provide aggressive fire suppression on 200.000 acres. Designate 900.000 acres as conditional suppression and fire use areas.
6. Limit off-road vehicle (ORV) use on 302,634 acres: close 15,144 acres to ORV use. Remaining acres open to ORV use. Millican Valley would be closed to organized ORV use. No land would be managed for rockhounding. Existing disturbed areas would be reclaimed.
7. Designate Horse Ridge Research Natural Area and 11 additional areas totalling 42.329 acres as ACECs. Designate three areas totalling 1.565 acres as RNAs.
8. No land would be offered for sale. No agricultural use would be authorized. Areas used for agricultural purposes would be reclaimed. No public land within the LaPine core area or near Bend. Redmond or Prineville would be disposed of. Acquire through exchange, two easements to provide public access for primitive and unconfined recreation use.
9. Public lands would remain open for exploration (including geophysical) and development of mineral resources and related rights-of-way where no significant conflicts with visual. watershed and wildlife values exist. Fluid mineral leasing would continue with the entire federal reserved mineral estate and 708.038 acres of public land open to exploration subject to standard lease requirements and stipulations. Leases on a total of 42.329 acres would not be renewed as they expired to protect areas of critical environmental concern. The no surface occupancy stipulation on 16,480 acres around Prineville Reservoir. along with seasonal restrictions on 44.580 acres of deer wintering areas and 3.560 acres of sage grouse strutting grounds would be continued. Restrictions to protect 300,000 acres of land that are visually sensitive or of high-scenic quality would be continued. No exceptions to the protective stipulations would be allowed.

Summary of Environmental Consequences

Air – None of the alternatives would significantly affect air quality.

Soil – Over the long term, soil stability would improve under Alternatives D. E and F, remain unchanged under C and decline slightly under Alternatives A and B.

Water – Over the long term. water quality and quantity would improve under Alternatrves D, E and F, remain unchanged under C and decline slightly under Alternatrves A and B.

Forestland – Annual harvest levels would be the greatest under Alternative A, and somewhat less under Alternative B. There would be no change under Alternative C. Annual harvest levels would not change significantly under Alternatives D and E, however. less total volume would be harvested. Commercial timber harvest in the LaPine portion would not occur under Alternative F.

Livestock Grazing – Forage allocations would be the greatest under Alternative A. Increases would also occur under Alternatives B and 3. Forage levels would remain the same under Alternative C and decrease slightly under Alternative E. Under Alternative F, no livestock grazing would occur on the public lands in the LaPine portion.

Wild Horses – Wild horses would be removed under Alternatives A, D and F. There would be no change under Alternative C. Horse numbers and management would increase under Alternative B with the greatest increases occurring under Alternative E.

Wildlife – Wildlife habitat diversity would decrease under Alternatives A, B and F. There would be no change under Alternative C and increased habitat diversity under Alternatives D and E.

Recreation – Overall use levels would increase the most under Alternative A. Lesser increases would occur under Alternatives B and D. There would be no change under Alternative C. Slight decreases in use would occur under Alternatives E and F.

Areas of Critical Environmental Concern – All alternatives would protect special values. The greatest protection would occur under Alternative F. Alternatives D and E would provide protection for more areas than would be designated under Alternatives A and B. Alternative C would provide the least amount of protection.

Visual – Alternatrves A and B would adversely effect visual quality. There would be no change under Alternative C. Beneficial effects would occur under Alternatives D and E with the greatest protection of visual resources occurring under Alternative F.

Minerals – Alternatives A and B would significantly benefit the availability of minerals. There would be no change under Alternatives C and D. Minerals availability would decrease under Alternative E and be srgnificantly reduced under Alternative F.

Socioeconomics – Alternatives A. B and D would increase economic values in the planning area. Alternative C would have no change. Alternatives E and F would reduce economic values slightly.

Table 1. Summary, Long-term Environmental Consequences: Comparison of Alternatives

Resource	Alternative A (Commodity Production)	Alternative B (Commodities with Natural Values)	Alternative C (Existing Management)	Alternative D (Preferred)	Alternative E (Natural Values with Commodities)	Alternative F (Natural Values)
Air Quality	NC	NC	NC	NC	NC	NC
Soil/Water	-L	-L	NC	+L	+L	+M
Forestland						
Harvest Levels	+M	+L	NC	+L	-L	-H
Woodland						
Harvest Levels	+M	NC	NC	NC	NC	-M
Livestock Grazing						
Available Forage	+M	+M	NC	+M	NC	-M
Wild Horses						
Herd Populations	-M	+L	NC	-M	+M	-M
Recreation Use						
Off Road Vehicles	+M	+L	NC	+L	-L	-M
Rockhounding	+H	+H	NC	+M	-L	-M
Overall Use	+M	+L	NC	+L	-L	-L
Wildlife Habitat	-M	-L	NC	+L	+L	-L
Areas of Critical Environmental Concern						
Protection of Values	+L	+L	NC	+M	+M	+H
Visual Quality	-L	-L	NC	+L	+L	+M
Minerals Availability	+M	+M	NC	NC	-L	-M
Socioeconomics						
Overall value	+L	+L	NC	+L	-L	-L

+ Enhanced H High
- Degraded M Moderate
NC No Change L Low

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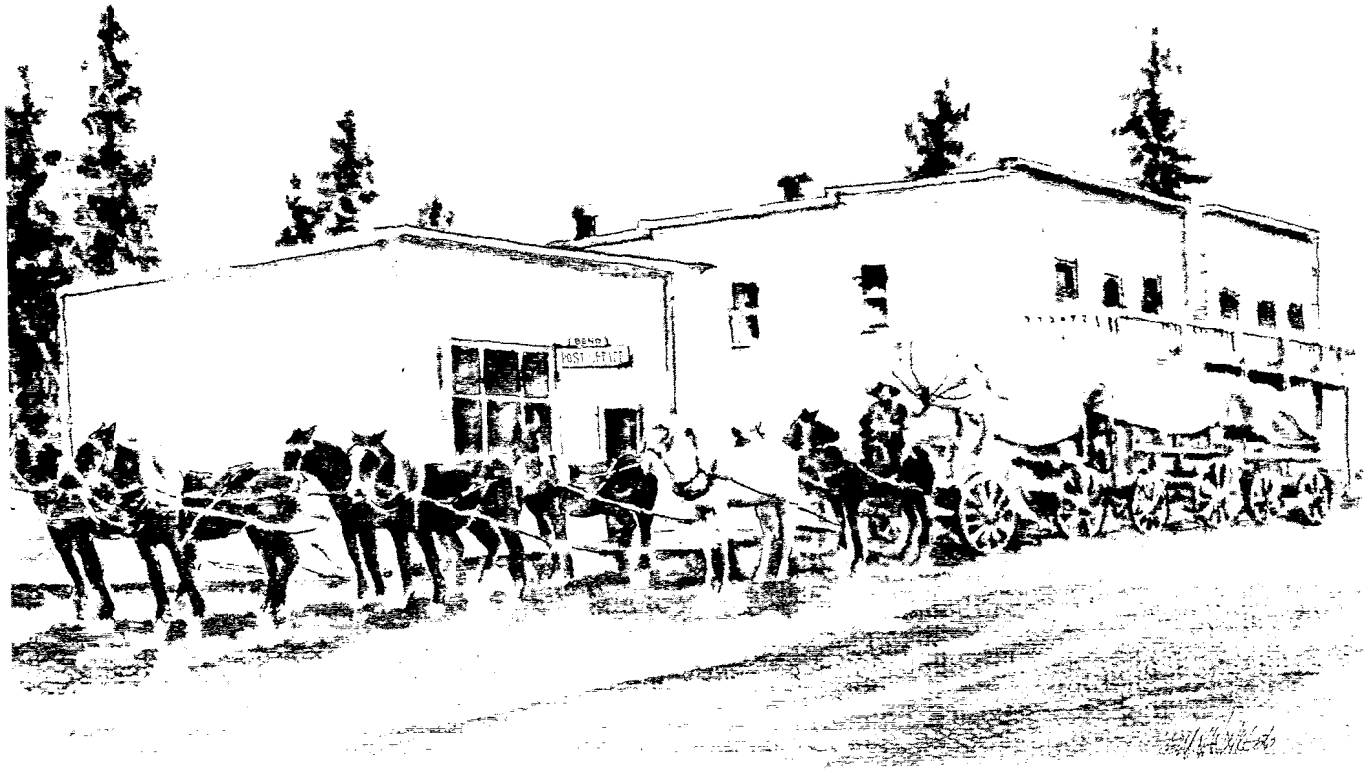


Wall Street — Bend, about 1910

Introduction: The Planning Area

This Resource Management Plan/Environmental Impact Statement (RMP/EIS) provides a comprehensive framework for managing public lands in the Brothers LaPine Planning Area and for allocating resources in that area for the next 10 to 15 years. The document analyzes impacts associated with managing 1,069,206 acres of public land in the high desert area around the community of Brothers, plus 45,881 acres in the vicinity of LaPine (Map 1). In addition, 130,570 acres of private land with federal subsurface mineral estate where the BLM is the administering agency is included.

Table 2 summarizes public land in the Brothers/LaPine Planning Area located in five counties in central Oregon.

Table 2. Public Land Acreage, Brothers/LaPine Planning Area

County	Public Land Administered by BLM	Private Surface Federal Subsurface Mineral Estate	Approximate Total Acreage of County
Crook	506,325	108,514	1,914,000
Deschutes	468,427	17,180	1,955,000
Harney	1,080	3,018	6,546,000
Klamath	26,550	0	3,926,000
Lake	92,705	1,858	5,350,000
TOTAL	1,115,087	130,570	9,691,000

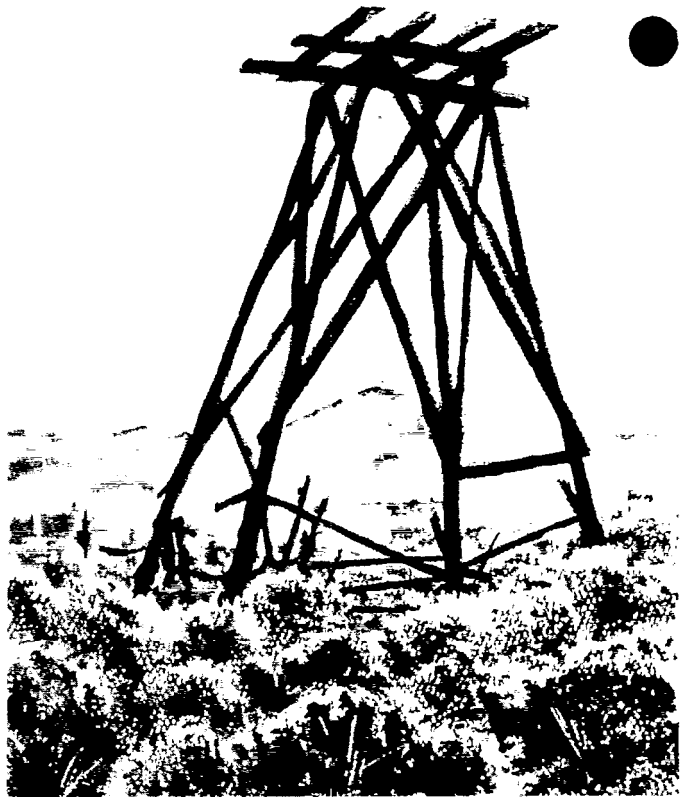
The Ochoco, Deschutes and Winema National Forests are the other major federal lands in the planning area.

The land is located on central Oregon's high desert (Map 2) and in an area concentrated around the town of LaPine (Map 3). The Brothers portion is characterized by juniper and sagebrush with the Deschutes and Crooked River drainages being the primary geographic features in the area. Population is centered in and near Bend, Redmond and Prineville.

The LaPine portion is characterized by dense stands of lodgepole pine with occasional mountain meadows. Population is centered in LaPine.

The Bureau of Land Management administers this public land from the district office in Prineville, Oregon.

This Brothers/LaPine RMP EIS summarizes decisions from the Brothers Grazing Management Rangeland Program Summary (1983) and the Brothers Management Framework Plan (1982) and identifies future program development for other resources in the Brothers portion of the planning area. In addition, it identifies program direction for all resources in the LaPine portion of the planning area.



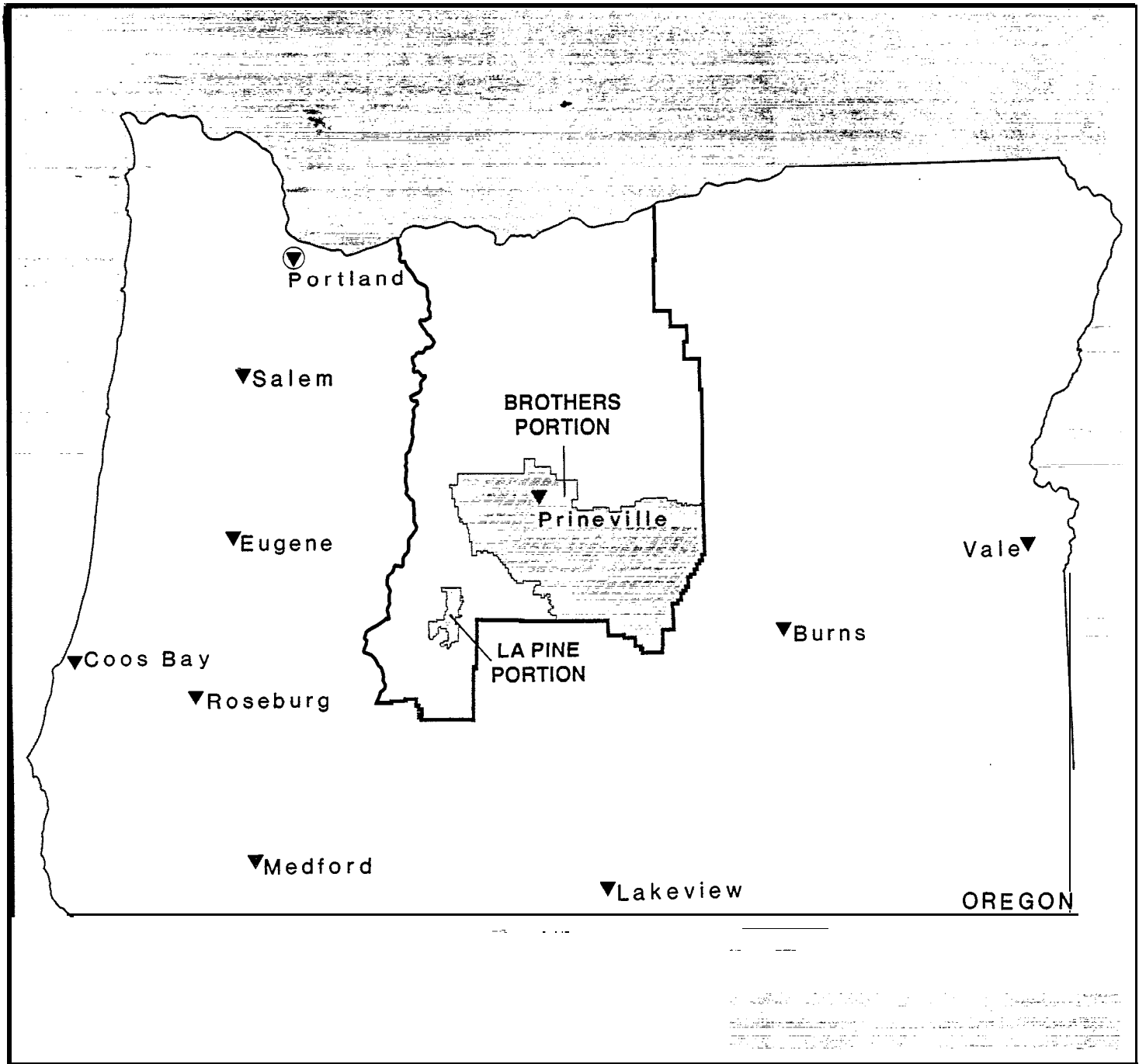
Old Millican Well

Purpose and Need

By its very nature, a resource management plan determines management direction for public land within the principles of multiple use and sustained resource yield.

In addition to the preferred alternative, this resource management plan and environmental impact statement identifies management alternatives across a broad spectrum, ranging from management intended to increas traditional economic benefits, through alternatives designed to provide maximum protection to natural features and scenic values. It contains an analysis of the current condition of the resource and indicates expected changes as a result of implementing each alternative.

Following the public comment period, the District Manager may modify the preferred alternative based on public comment, interagency review for consistency and environmental or economic considerations. After review and approval by the State Director, the BLM will publish a final RMP/EIS for public review. By the fall of 1988, a Record of Decision will be completed.



BLM State Office

BLM District Office

Prineville District Boundary

Brothers/La Pine Planning Area

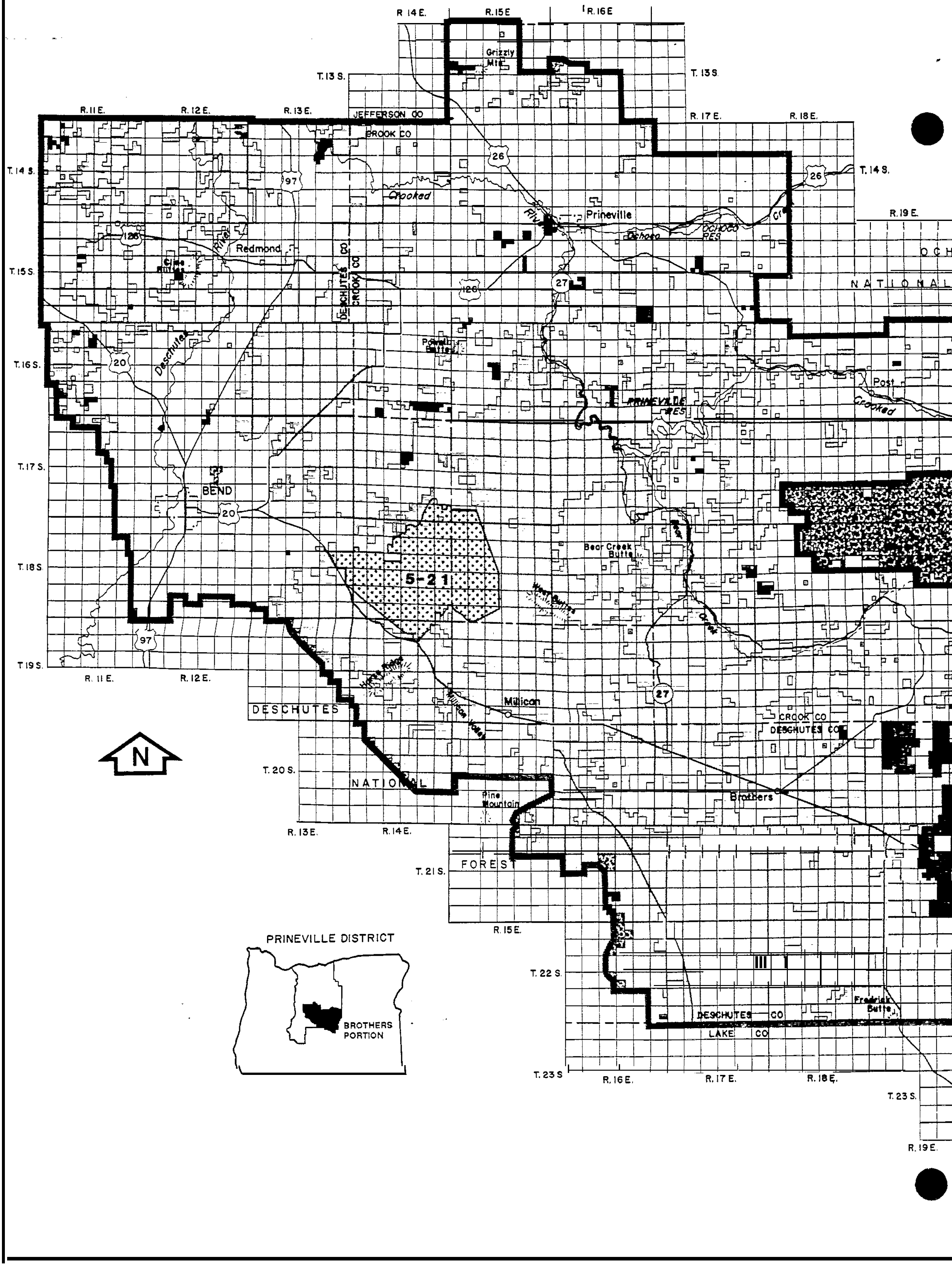
U. S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

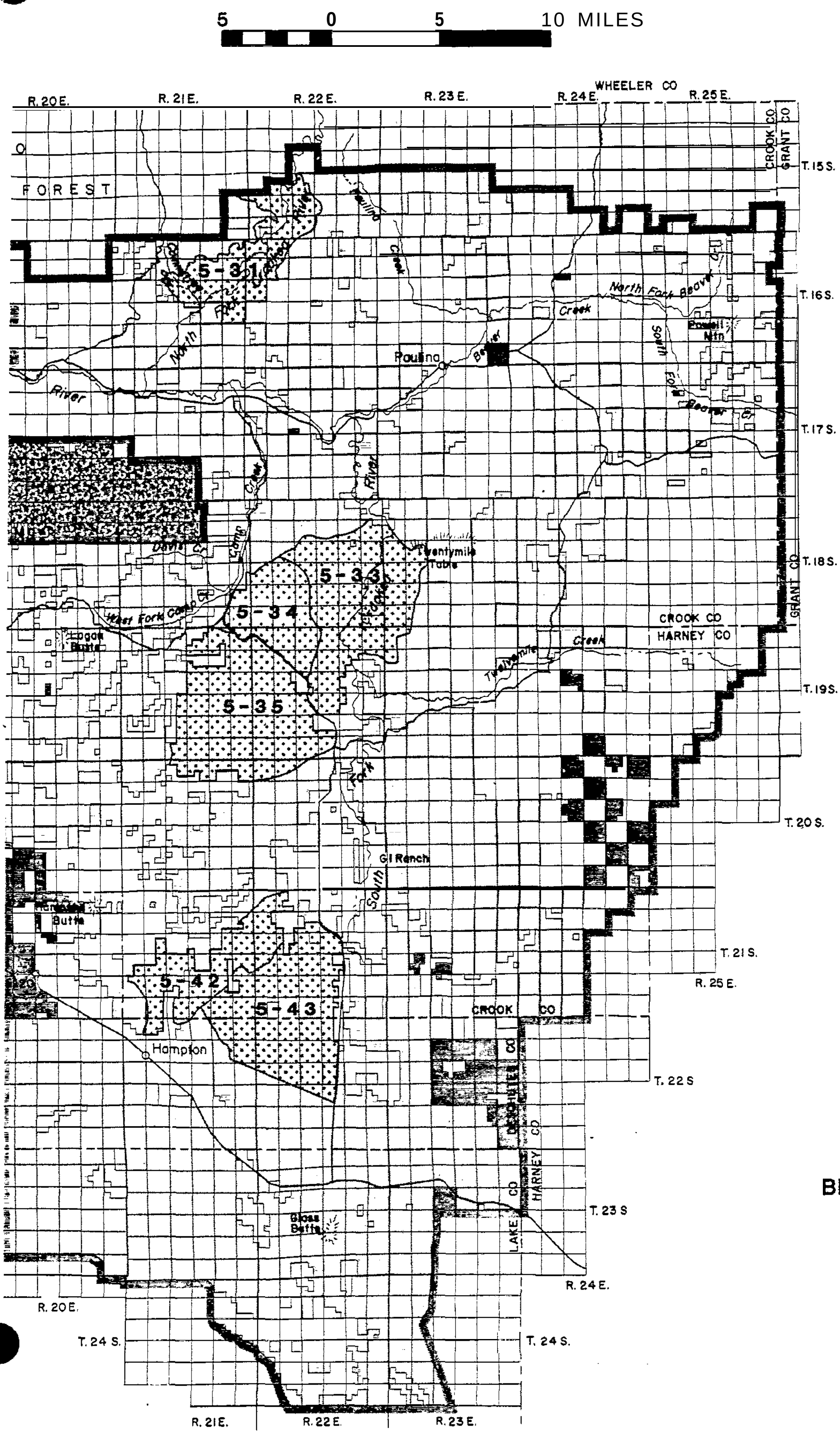
PRINEVILLE DISTRICT

October 1987

BROTHERS/LA PINE PLANNING AREA

MAP 1
General Location
Brothers/La Pine Planning Area


R. 14 E.
R. 15 E
R. 16 E
T. 13 S.
Grizzly Mtn
R. 11 E.
R. 12 E.
R. 13 E.
JEFFERSON CO
BROOK CO
R. 17 E.
R. 18 E.
T. 14 S.
26
97
Crooked
Prineville
River
R. 19 E.
126
Redmond
Cline Buttes
River
DESCHUTES CO
CROOK CO
Ochoco
OCHOCO RES
Cr
OCH
T. 15 S.
NATIONAL
27
Powell Buttes
20
Deschutes
T. 16 S.
Post
PRINEVILLE RES
Crooked
T. 17 S.
BEND
20
Bear Creek Butte
Bear
5-21
T. 18 S.
West Butte
Creek
97
T. 19 S.
R. 11 E.
R. 12 E.
Horse Ridge
Millican Valley
Millican
27
DESCHUTES
CROOK CO
DESCHUTES CO
N
T. 20 S.
NATIONAL
Pine Mountain
Brothers
R. 13 E.
R. 14 E.
T. 21 S.
FOREST
R. 15 E.
PRINEVILLE DISTRICT
T. 22 S.
BROTHERS PORTION
Fredrick Butte
DESCHUTES CO
LAKE CO
T. 23 S
R. 16 E.
R. 17 E.
R. 18 E.
T. 23 S.
R. 19 E.



BLM Land

US Forest Service Land

State Land

Private Land

Wilderness Study Area

5-21 Badlands
5-31 North Fork
5-33 South Fork
5-34 Sand Hollow
5-35 Gerry Mountain
5-42 Hampton Butte
5-43 Cougar Well

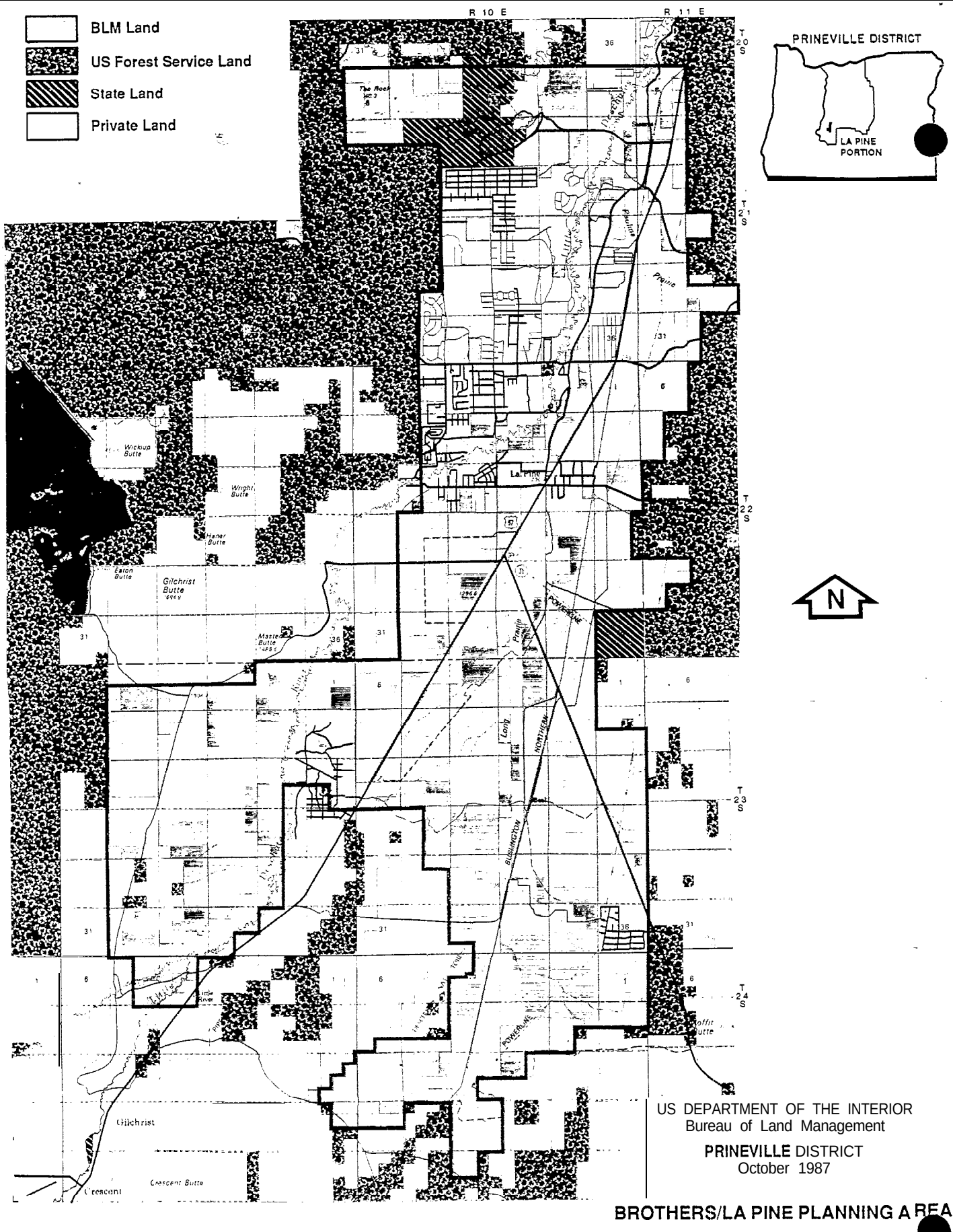
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management

PRINEVILLE DISTRICT
October 1987

BROTHERS/LA PINE PLANNING AREA

MAP 2

Land Status
Brothers Portion



US DEPARTMENT OF THE INTERIOR
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PRINEVILLE DISTRICT
October 1987

BROTHERS/LA PINE PLANNING AREA

MAP 3
Land Status
La Pine Portion

The preferred alternative identified in this document was selected-on the basis of public meetings and comments made through correspondence, contacts with local governments, suggestions from user groups and staff discussion as summarized in Appendix A. The Brothers/LaPine RMP/EIS is being developed under the requirements of the Federal Land Policy and Management Act and involves interdisciplinary planning processes applicable to multiple use **and** sustained resource yield.

The RMP/EIS is written in compliance with the National Environmental Policy Act of 1969, the Council on Environmental Quality regulations and specific BLM policy.

Planning Process and Criteria

The BLM planning process, summarized in Table 3, involves public involvement at various stages. Public meetings to discuss issues and alternatives were held in September, 1986, in Prineville, Bend, and LaPine.

Table 3. Resource Management Planning Process

1	Identification of Issues	Completed
2	Development of Planning Criteria	Completed
3	Inventory Data and Information Collection	Completed
4	Analysis of Management Situation	Completed
5	Formulation of Alternatives	Completed
6	Estimation of Effects	Completed
7	Selection of a Preferred Alternative	
	a. Draft RMP/EIS	Completed
	b. Final RMP/EIS	Mar. 88
8	Selection of the Resource Management Plan	Sep. 88
9	Monitoring and Evaluation	Ongoing

The planning process is designed to accommodate public use of public lands while protecting and managing the lands in compliance with laws established by the Congress and policies implemented by the executive branch. of the federal government.

Planning criteria used to assist in the development of alternatives analyzed in this document are listed in Appendix B.

Issues

A number of specific issues were developed from comments at public meetings, in response to the Preliminary Issues and Alternative Brochure (BLM, 1987) developed for the planning area.

Issues common to the entire planning area include: land tenure and access, recreation management, areas of critical environmental concern, woodland management, wild horses and fire management. Issues related to livestock grazing management, riparian management, wildlife habitat and forestland management in the Brothers portion of the planning area were addressed and resolved in the Brothers Management Framework Plan completed in 1982 and the Brothers Grazing Management Rangeland Program Summary completed in 1983. Livestock grazing management, riparian management, forestland management and wildlife habitat management in the LaPine portion will be analyzed in this document.

Public comment plus input from user groups or governmental agencies were utilized in developing the following issues:

Land Tenure and Access

Is there a need to consolidate public land through exchange into areas with high public value? If so, what areas are most important? What lands, if any, should be identified for disposal by public sale, exchange or transfe to another agency? What should the BLMs policy be in regard to public access and utilitytransportation corridors? What type of access if any, should be acquired and for what purposes and to which areas? Tht BLM will continue to resolve unauthorized agricultural us of public lands. What considerations should be made in deciding whether to authorize the use (lease or sale), or to allow the land to revert back to a natural condition?

Forestland

What should the BLMs forestry program be in the LaPine area as a result of the Mountain Pine Beetle infestation? What should the harvest method and level be to adequately protect other resources such as scenic qualities, wildlife habitat and deer migration?

What should the BLMs woodland products program be? Which areas should be open to woodcutting and in whic areas should woodcutting not be permitted? Should the volume of firewood and other woodland products made available each year be changed?

Recreation Management

Are there areas where off road vehicle use should be limited? Should off road vehicle use on certain areas be prohibited altogether? If so, which areas should be limits or closed? Should the designated boundary of the Millican Valley ORV area be modified or the managemer emphasis in this area changed?

Off toad vehicle in Millican Valley

Should certain areas containing deposits of semi-precious stones be set aside and managed specifically for public recreation use?

Areas of Critical Environmental Concern

Which areas, if any, are suitable for formal designation as Areas of Critical Environmental Concern (ACECs), Research Natural Areas (RNAs), etc; to preserve outstanding or unique scenic, botanic, geologic, zoologic, cultural, or other resource values?

Wild Horses

How many wild horses, if any, should be maintained and how should they be managed?

Livestock Grazing

What should the BLMs grazing management program be in the LaPine area? Should the BLM maintain the existing management program, eliminate it or provide more intensive management?

Wildlife Habitat Management

What actions should be taken to protect and manage deer migration corridors in the LaPine area? What management practices, or habitat improvement projects are appropriate to provide a more diverse range of habitats in the LaPine area for wildlife?

Fire Management

What should the BLM fire management strategy be in considering multiple use resource values and goals? How should conditional suppression be used? What should the BLMs smoke management policy be? What interagency considerations are necessary for implementing fire management strategies?

Issues Eliminated from Detailed Study

Ongoing Statewide Wilderness Study

The wilderness study process has continued since 1979 and has progressed beyond the level of detail contained in this RMP/EIS process. Seven areas located in the planning area totalling 121,363 acres are being considered for designation as wilderness (Map 2). No further analysis of these areas for wilderness will be included in this document; however, portions of some wilderness study areas are considered for designation as ACECs.

A separate statewide wilderness EIS is scheduled for completion in 1988 or 1989. Recommendations regarding the suitability or nonsuitability of these areas as wilderness will be forwarded to Congress by 1991. Only Congress can designate an area as wilderness.

Issues Resolved in Brothers Grazing Management Rangeland Program Summary

The Brothers Grazing Management Rangeland Program Summary (RPS) published in 1983, identified management direction for grazing in the Brothers portion of the planning area. Decisions in that document were based on an analysis of trade-offs and conflicts with other public land resources. Decisions are now in the process of being implemented and will be monitored and adjusted as necessary to ensure goals and objectives for management of livestock grazing, wildlife habitat and

riparian management in the Brothers area are achieved.. The Brothers Grazing Management RPS decisions are summarized in Chapter 2. Grazing management in the Brothers portion will not be re-analyzed in this document.

BLM Planning and Resource Interrelationships

Interagency coordination with other federal agencies, state and local government is required by BLM regulations (43 CFR Part 16103) and functions under cooperative agreements or memoranda of understanding.

Federal Agencies

With parts of three national forests administered by the U.S. Forest Service (USFS) adjacent to the BrothersiLaPine Planning Area, the two agencies strive to achieve similar resource management goals on adjoining lands.

The U.S. Fish and Wildlife Service administers the Endangered Species Act of 1973 (as amended). The BLM consults with that agency when it is determined that a special status species or its critical habitat may be affected. The BLM requests technical assistance whenever a proposed project might impact a federal candidate species. The U.S. Fish and Wildlife Service issues a formal biological opinion and appropriate courses of action. A proposed action may be modified or abandoned to meet those concerns.

The BLM and the Bonneville Power Administration (BPA) coordinate resource management programs through a memorandum of understanding. The BLM, the BPA and the Northwest Power Planning Council are involved in stabilization and improvement of riparian zones, anadromous fish habitat as authorized by the National Power Planning Act and aquatic habitat through grants provided by the BPA. The BPA also assists the BLM in identifying and evaluating regional utility corridor options.

The Federal Energy Regulatory Commission reviews proposals for new powersites on rivers within the Brothers/LaPine Planning Area.

The BLM works with U.S. Soil Conservation Service on shared soil and water management issues as well as other resource concerns.

The BLM and Department of Defense coordinate activities on public land under withdrawal for military training exercises near Redmond.

The BLM and the U.S. Forest Service have several interagency agreements regarding minerals management on lands administered by the USFS. The BLM also has interagency agreements on minerals management with other federal agencies, such as the Bureau of Indian Affairs, However, the management of minerals on lands administered by other federal agencies is not addressed as part of this RMP.

State and Local Governments

The Intergovernmental Relations Division of the Executive Department of Oregon acts as a clearinghouse for various state agencies. State agency review of the BLM planning process is coordinated through that clearinghouse. Planning is also coordinated with the county commissioners and county planning departments.

The BLM and the Oregon Department of Fish and Wildlife (ODFW) work closely on site-specific activities. The ODFW also works with the BLM on livestock grazing management, vegetation monitoring and evaluation, and the installation of range and wildlife improvements. The consistency of the alternatives analyzed in this plan with the ODFW wildlife goals are presented in Appendix C.

The BLM works cooperatively with the Oregon Department of Forestry (ODF) in fire suppression activities on public lands. Prescribed burning is schedule in cooperation with adjacent landowners and the ODF. The BLM follows Oregon's Smoke Management and Visibility Protection Plan when prescribed burning is done BLM also coordinates with ODF and private landowners for forest harvest techniques and silvicultural practices.

The Oregon Department of Forestry (ODF), through administration of the Forest Practices Act of 1972, regulates timber harvest operations and related practice: on all non-federal lands within the planning area. The BLM has entered into a memorandum of understanding with the ODF on minimum standards for:

- Timber harvest
- Reforestation of economically suitable lands
- Road construction and maintenance on forested land
- Chemical applications
- Slash disposal
- Maintenance of streamside buffers

The consistency of the alternatives analyzed in this plan with the basic objectives of the Forestry Program for Oregon are presented in Appendix C.

The BLM and Oregon State Parks Division of Departme of Transportation regularly consult on issues related to management of public land adjacent to state parks and state scenic waterways.

Under a memorandum of understanding, the BLM and Oregon Department of Environmental Quality (DEQ) wo together to meet implementation requirements of the Clean Water Act (PL 92-500), as amended. The Fish ar Wildlife Coordination Act of 1958 requires wildlife conservation be given equal consideration and be coordinated with other features of water developments.

The Oregon Department of Geology and Mineral Industries (DOGAMI) and BLM have a memorandum of understanding covering development of geothermal resources, conservation of oil and gas, and mined land reclamation on federal lands administered by BLM in Oregon. DOGAMI and BLM work closely to avoid duplication in regulations, inspections and approval of reclamation plans and attempt to minimize repetitive costs to miner operators, the public and state and federal governments.

The BLM cooperates with soil and water conservation districts to establish mutual goals in coordinating range and watershed practices and to gather and share information beneficial for use on public and private lands. Cooperation with appropriate weed control districts also occurs to deal with infestations of noxious weeds.

Under Section 202 of the Federal Land Policy and Management Act all BLM plans must be consistent, insofar as possible, with resource-related plans officially approved or adopted by state and local agencies. The comprehensive plans for Crook. Deschutes, Lake, Klamath and Harney counties have been acknowledged by the Oregon Land Conservation and Development Commission and are in conformance with statewide planning goals and objectives. The public lands within the planning area are generally in "exclusive farm use" or "forestland" zones.

Appendix D shows the relative consistency of each alternative with county comprehensive plans as they incorporate and reflect statewide land conservation and development goals.

County plans on minimum lot size for residences vary. The sale of small parcels of public land would not violate county plans because the new owners would still be subject to county zoning requirements in obtaining building permits.

Individuals and Groups

Approximately 1.5 million acres of private land lies within the boundaries of the Brothers/LaPine Planning Area. These lands comprise more than 50 percent of the surface ownership. Public lands, managed by the BLM, comprise approximately 46 percent. Management coordination is, therefore, essential.

Coordination and Consistency with Other BLM Plans

Public lands north of the Brothers/LaPine Planning Area are located in the Two Rivers Planning Area. A resource management plan and record of decision for the Two Rivers Planning Area was completed in 1985 and 1986. The preferred alternative in the draft Brothers/LaPine RMP/EIS is consistent with the decisions contained in the Two Rivers RMP.

The Brothers Grazing Management Rangeland Program Summary (RPS) and-Management Framework Plan (MFP) were completed for the Brothers portion of the planning area in 1982 and 1983. Decisions regarding forestry, livestock grazing, riparian management and wildlife habitat were made in those documents that are still in conformance with existing planning and policy requirements. Those decisions have been incorporated into this document.

The BLM will coordinate site-specific planning and activities with the adjacent Burns and Lakeview BLM Districts as needed.

Relationship of the Preferred Alternative and Other Alternatives to Tribal Treaties

A portion of the Brothers/LaPine Planning Area was ceded to the U.S. Government by the Confederated Tribes of Warm Springs through ratified treaty. The treaty reserves to the Indians the rights for fishing at usual and accustomed locations, hunting, gathering roots and berries and grazing their stock on unclaimed land. The interests of contemporary Native Americans include the protection of Indian burial grounds and other sacred sites and the perpetuation of certain traditional activities, specifically root gathering and fishing. The Burns Paiute Reservation may also have such interests on public lands in the planning area.

Agreements will be established with the Confederated Tribes of the Warm Springs Indian Reservation and Burns Paiute Tribe on the appropriate level and timing for consultation as required by the Archaeological Resources Protection Act (1979) and recommended by the Historic Preservation Act (1966). The BLM will also contact and consult with the appropriate tribal representatives and BIA agencies in the early stages of project or activity planning that may affect tribal interests, treaty rights, or traditional resource areas within ceded tribal lands.

Chapter 2. Description of the Alternatives Including the Preferred Alternative

Main Street — Redmond, in 1905

a

Alternatives to be Analyzed/Dropped from Detailed Study'

Several alternatives were considered in addressing specific issues in the Brothers/LaPine Planning Area but were dropped from further study. Those alternatives were unconstrained in the production or protection of one resource at the expense of others. They were considered inappropriate because the proposed management direction would violate BLMs legal mandate to manage public land on the basis of multiple use and sustained resource yield. They would also violate one or more federal laws or executive orders regarding protection of various resources (i.e. air or water quality or cultural resources).

National Environmental Policy Act (NEPA) and BLM resource management planning regulations both require formulation of alternatives. One alternative must represent a continuation of present management or levels of resource use. The other alternatives are aimed at providing choices ranging from those favoring resource protection to those favoring production.

The RMP/EIS alternatives are designed to identify combinations of public land uses and resource management practices that resolve planning issues. These alternatives were reached by placing varying degrees of emphasis on resource protection or production.

Six alternatives are considered in detail in this document. Four have varying levels of resource protection) production and one is a "no action" alternative. The sixth alternative, the preferred alternative, incorporates parts of the other alternatives.

The alternatives are displayed in Table 10.

Rationale for Selection of the Preferred Alternative

The preferred alternative best meets policy guidance, best satisfies the planning criteria and best resolves identified issues. It mitigates conflicts and represents reasonable tradeoffs between land uses while protecting non-renewable and/or natural values.

Implementation of the preferred alternative is designed- to accomplish the following:

- Provide for land exchanges, transfers, sales, authorization of agricultural use and acquisition of public access;
- Provide an annual timber harvest utilizing dead, dying and high-risk trees in the LaPine portion while maintaining or enhancing visual qualities and wildlife habitat diversity;
- Provide management for motorized as well as primitive and dispersed recreational activities with' a continued emphasis on minimum impact on public land resources;
- Provide for the protection and management of all identified areas of critical environmental concern (ACECs);
- Maintain or improve overall watershed and vegetative conditions:
- Balance wildfire suppression emphasis with resource and property values-at-risk.

Management Guidance Common to All Alternatives

The following management guidance is applicable to all alternatives considered in detail. It is presented here to avoid repetition.

Requirements for Further Environmental Analysis

Site-specific environmental analysis and documentation (including categorical exclusion where appropriate) will be accomplished for each proposed project. Interdisciplinary impact analysis will be tiered within the framework of this and other applicable environmental impact statements.

Wilderness

The Bureau's Interim Management Policy, as it relates to the seven areas being considered for wilderness designation, will be followed. Possible designation of these areas as wilderness will be recognized in the final land use decision.

Water

In all alternatives, existing water quality will be maintained or enhanced consistent with or exceeding Oregon's water quality management plans and will meet or exceed Oregon's Forest Practices Act.

Vegetation

Special Status Species

Before any vegetative or ground-disturbing activity-is allowed, a survey of the project site for special status plants or critical habitat will be completed. Every effort will be made to modify, relocate or abandon the project to obtain a “no effect” determination. If the BLM determines that a project cannot be altered or abandoned, consultation with the U.S. Fish and Wildlife Service (USFWS) will be initiated (50 CFR 402; Endangered Species Act of 1973, as amended).

Peck’s long-bearded mariposa lily

The BLM will implement actions identified in the Pacific Bald Eagle Recovery Plan as opportunity arises and funding is available.

Forestland

Fundamental procedures developed to protect or enhance soil, wildlife and fish habitat, riparian vegetation, water quality, cultural and visual resources as described in Appendix E will be used. Forestry practices will be guided by site-specific environmental analyses. Maintaining or improving site productivity will be a basic objective in all forestry practices. Harvesting minor forest products such as posts, poles or firewood will be guided by similar. considerations.

Decisions on forestry practices (treatments) will be made with two primary objectives: successful reforestation and increasing subsequent growth of commercial species. Specific mitigation recommendations will be used to minimize unavoidable, adverse impacts and to resolve conflicts with other resource values.

General timber management practices common to all alternatives in the LaPine portion of the planning area are:

1) No surfaced roads will be constructed. Access roads will be primitive, minimum-standard spur roads.

2) Only spur roads to provide basic access for protection and management will remain after timber harvesting is completed (approximately one per one-half mile). All other spur roads will be rehabilitated. Rubber-tired equipment will generally be used in timber harvesting activities.

3) No precommercial thinning is planned during the next 20 years.

4) Approximately 135 acres will be set aside for protection of wet meadows or riparian areas. No timber harvest will occur adjacent to wet meadows or riparian areas.

5) Visual resources will receive strong consideration within a one-quarter mile corridor on each side of Highways 97 and 31 and the access road to LaPine State Park. Within Highway 97 and 31 corridors, primarily dead trees will be harvested. Cutting areas will be shaped and designed to blend as closely as possible with natural terrain and landscape.

6) Natural seed tree regeneration will occur in all areas.

7) No herbicides will be used to control competing vegetation. Livestock grazing for vegetation contro will be used as much as possible to reduce competition between grass and tree seedljngs.

8) During prescribed fire, use of best available technology may include: residue utilizaton, mass ignition and rapid mop up. Oregon’s Smoke Management Plan will be followed.

9) Slash disposal outside the highway corridors generally will be by lopping and scattering. Other methods which meet resource objectives may include whole tree logging, crushing, etc. Within the highway corridor, whole-tree yarding will be utilized. Trees will be limbed at the landing and slash will be disposed of by burning, in accordance with state fire protection and air pollution regulations.

10) Personal use firewood, up to a total of approximately 2,500 cords annually, will continue to be available.

Livestock Grazing

Allotment Categorization

All grazing allotments in the planning area have been assigned to a management category. The categorization process is designed to establish allotment priorities so management efforts and funding can be directed to areas of greatest need. The three categories are I (Improve), M (Maintain), and C (Custodial). Criteria for each of the categories is listed in Appendix F.

The I allotments are usually areas with a potential for resource improvement where the BLM controls enough land to implement changes. Some I allotments are under intensive management planning cooperatively developed by all landowners in the allotment.

The M allotments are usually where satisfactory management exists and major resource conflicts have been resolved.

Most of the C allotments are small, unfenced tracts intermingled with larger acreages of non-BLM lands, thus limiting BLM management opportunities.

Allotment Management

Grazing management is accomplished by decision or agreement with affected parties. Allotment management plans and coordinated resource management plans are the vehicles to document and implement decisions and agreements. These plans are developed by inter-disciplinary teams and are action-oriented to accomplish multiple resource objectives and resolve resource conflicts. They include grazing systems, season-of-use, number and type of livestock, range developments or vegetative treatments and monitoring studies that measure progress in accomplishing resource objectives.

Grazing Systems

The particular system for a given allotment depends on resource characteristics of the allotment, resource objectives, needs of the operator(s) and associated implementation costs.

Typical grazing treatments, systems available for consideration and the general effects of each system are described in Appendix G.

Range Developments

Ail range developments (fences and water) will incorporate design features and standard operating procedures discussed in Appendix H.

Range Monitoring

Range management practices will be monitored to determine if resource objectives are being met. No permanent changes in livestock forage use (except due to change in land base) will be made unless they can be substantiated through monitoring studies. If monitoring shows objectives are not being met, the activity plan will be modified as needed. Range monitoring studies are described in Appendix I.

Wildlife Habitat

Wildlife populations are managed by the Oregon Department of Fish and Wildlife. In 1982, management objective numbers were established for big game populations in the planning area.

Sufficient wildlife forage and cover will be provided to maintain existing wildlife population levels or ODFW management objective levels.

Upper Crooked River flowing through the Paulina Valley

Range developments will be designed to achieve both wildlife and livestock grazing management objectives. New fences will be constructed to allow wildlife passage and existing fences will be modified as appropriate. Where natural springs exist and are developed, the development will provide a more dependable water source for wildlife as well as livestock. Water troughs will accommodate use by wildlife and livestock. The spring area and the overflow will be fenced to exclude livestock trampling.

Riparian and Aquatic Habitat

Management actions within riparian areas will include measures to protect or restore natural functions, as defined by Executive Orders 11988 and 11990 and the Oregon-Washington Riparian Plan (1987). Management techniques will maintain or improve current good to excellent streambank stability and riparian vegetative condition. Riparian habitat needs will be considered in developing livestock grazing systems and pasture designs.

Special Status Species Habitat

No activities will be permitted that would jeopardize special status species. Management activities will benefit those species through habitat improvement.

The Oregon Department of Fish and Wildlife and the U.S. Fish and Wildlife Service will be consulted before implementing projects that may affect habitat for threatened, endangered or sensitive species. If an adverse situation is determined to exist, formal consultation with the USFWS will be initiated (Section 7 of the Endangered Species Act of 1973, as amended).

Noxious Weed Control

Infestations of noxious weeds are known to occur on some public lands in the planning area. Control methods including grazing management as well as chemical/mechanical and biological methods will be proposed and subject to site-specific environmental analyses. Control methods will not be considered unless weeds are confined to public lands or control efforts are coordinated with owners of adjoining infested lands. Proper grazing management will be emphasized to minimize new invasions of weeds and after control to minimize possible reinfestation.

A multi-state BLM environmental impact statement on noxious weed control has been completed for Oregon, Washington, Idaho, Montana and Wyoming. Copies are available through the Prineville District Office.

Fire Management

When prescribed fire is considered, it will be coordinated with the Oregon Department of Forestry and adjacent landowners and carried out in accordance with approved fire management plans and appropriate smoke management and visability goals and objectives. All a provisions of the Oregon Smoke Management Plan will be followed.

The Bear Creek Fire Use Plan, published in 1983, will be followed for 107,000 acres in the Bear Creek watershed. Copies are available through the Prineville District Office. Natural ignition fires will be allowed to burn under prescribed conditions within designated zones provided that District suppression forces are available to monitor and implement control actions as needed. Range improvements will be protected. No more than four fires in excess of 150 acres will be allowed to burn at any one time.

The seven wilderness study areas in the planning area require conditional fire suppression action. A special advance interim management plan has been completed for these areas. Copies are on file in the Prineville District Office.

Rural or urban areas between high value public or private lands and other BLM lands are managed as top priority suppression areas. These areas are primarily in the LaPine, Bend, Redmond and Prineville areas. The interface areas are special concern areas because of housing developments and adjacent high resource values.

Recreation

Low levels of off-road vehicle use occur throughout the LaPine portion of the planning area. Use has not been concentrated or caused adverse impacts. All public lands in the LaPine portion will be designated as “open” to off-road vehicle use under BLMs ORV regulations.

Visual Resources

Before the BLM initiates or permits any major surface-disturbing activity on public lands, an analysis will be completed to determine adverse effects on visual qualities.

Activities within areas of high or sensitive visual quality may be permitted if they will not attract attention or leave long-term adverse visual changes on the land. Activities in other areas may change the landscape but will be designed to minimize adverse effects on visual quality.

Dry River Gorge at Horse Ridge

Cultural Resources

The BLM will continue to identify cultural resource sites. They will be managed for information potential, public values and conservation. The BLM will insure that authorized land use actions do not inadvertently harm or destroy federal or non-federal cultural resources. Periodic patrols of known cultural resource areas will be carried out to discourage vandalism.

Sites will also be evaluated to determine if they are eligible for addition to the National Register of Historic Places. Cultural resource management plans will be written for areas with high cultural resource values such as Glass Buttes,

Energy and Minerals

Mineral exploration and development on public land will be regulated under 43 CFR 3802 and 3809 to prevent unnecessary and undue land degradation.

The withdrawals and segregation that currently exist totalling 36,511 acres in Glass Butte and 600 acres in the Horse Ridge Research Natural Area will not be affected under any alternative.

Leasable Minerals

Leasable minerals will continue to be made available on most of the land where the surface is also publicly owned. Restrictions or changes' in lease stipulations proposed under the various alternatives will apply only to areas not presently leased or areas presently leased where leases will be renewed.

Salable Minerals

Salable minerals, including common varieties of sand, gravel and stone will continue to be made available for local governments. The salable mineral program involves several quarries where state and county road departments obtain rock for road surfacing material. New quarry sites may be developed as needed if they are consistent with the protection of other resource values.

All public lands are open to recreational mineral collection unless specific minerals are subject to prior rights, such as mining claims.

Reserved Federal Mineral Estate

The reserved federal mineral estate will continue to be open for mineral development. Conveyances of mineral interest owned by the United States, where the surface is, or will be, in non-federal ownership, may be enacted after a determination is made under Section 209(b) of FLPMA finding:

1) That there are no known mineral values in the land, or

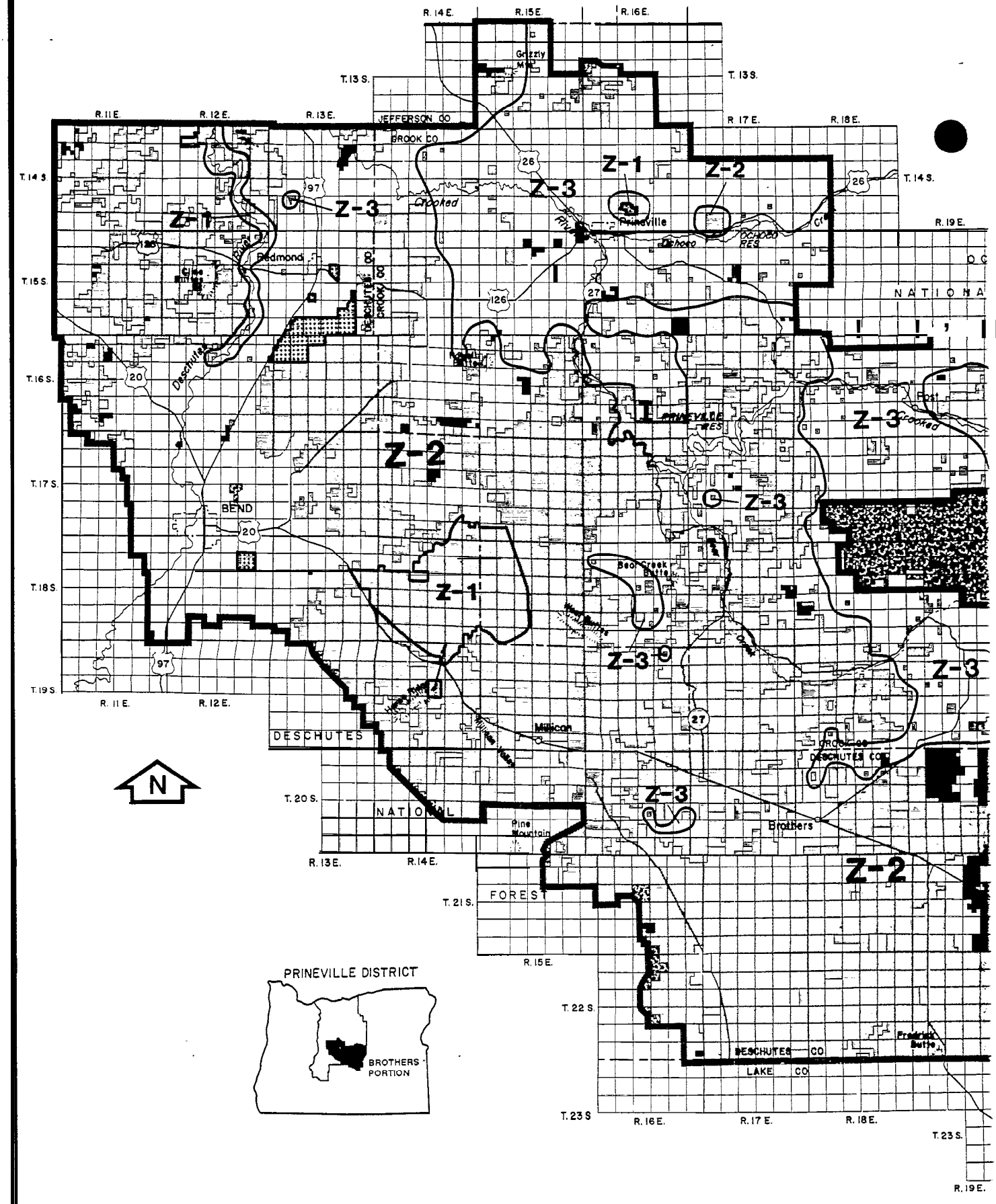
2) That the reservation of mineral rights in the United States would interfere with or preclude non-mineral development of the land and that such development is a more beneficial use of the land than mineral development.

All land tenure adjustments will consider the effect on the mineraf estate. If the lands are not known to have mineral development potential, the mineral interest will normally be transferred simultaneously with the surface.

Lands

Land Tenure and Access

Public land in the Brothers/LaPine Planning Area has been placed into three zones as shown on Maps 4 and 5 with acreages by county listed in Table 4.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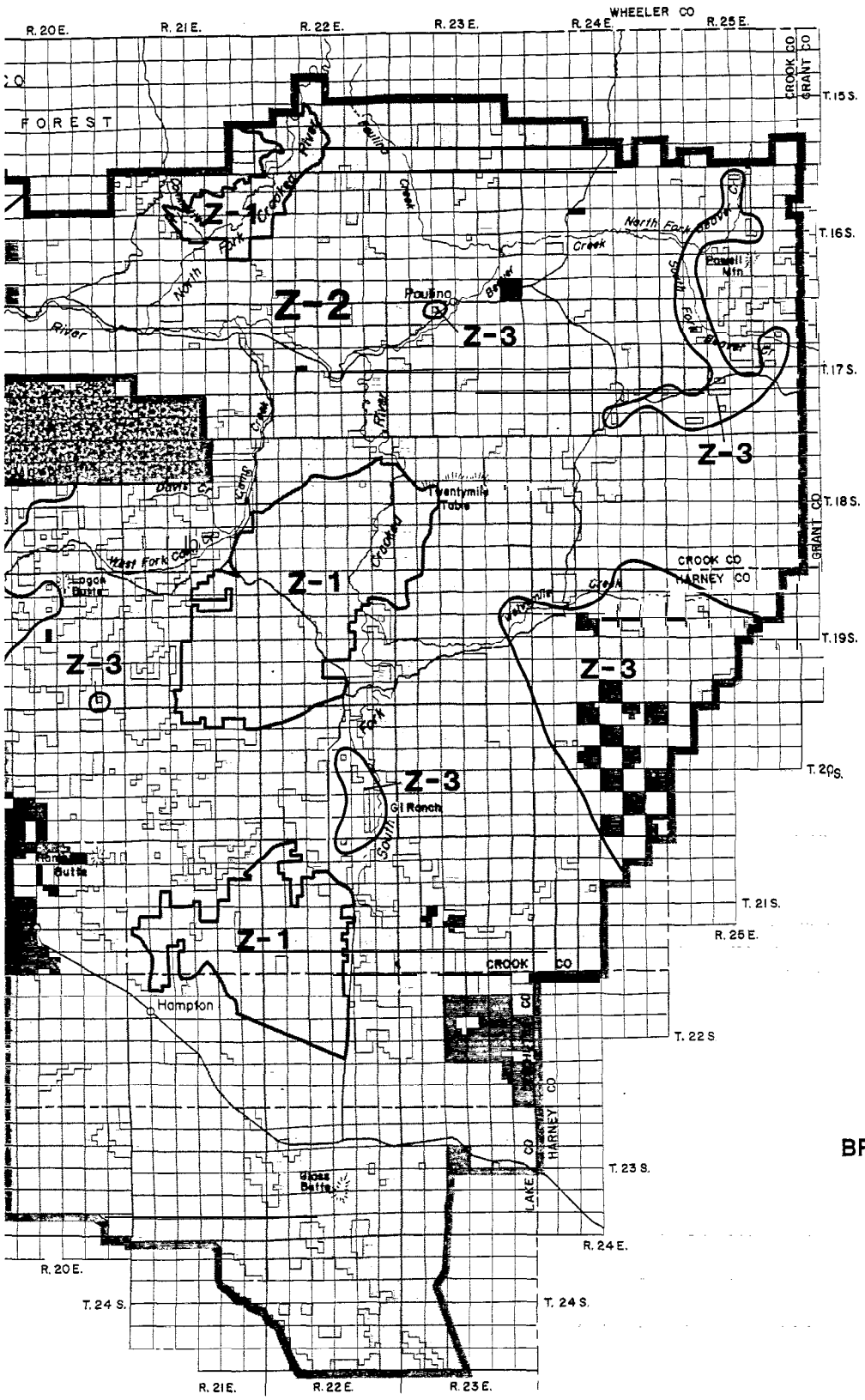
T. 22 S.
T. 23 S.
JEFFERSON CO
CROOK CO
DESCHUTES CO
LAKE CO
Grizzly Mtn.
Prineville
Redmond
BEND
Cline Falls
Millican
Brothers
Pine Mountain
Crooked
Deschutes
Ochoco Res.
Prineville Res.
Bear Creek Butte
Fredrick Butte
NATIONAL FOREST
Z-1
Z-2
Z-3
N
PRINEVILLE DISTRICT
BROTHERS PORTION



Z-1 Areas currently identified as having high public resource values and generally to be retained in public ownership.

Z-2 Areas with potential for high public resource values that may be exchanged for lands with higher public values.

Z-3 Areas with public lands which may be suitable for disposal through transfer to another agency, exchange or public sale

Public lands which have been identified for possible transfer or exchange to local governments as needed to **accomodate** community expansion and other public purposes.

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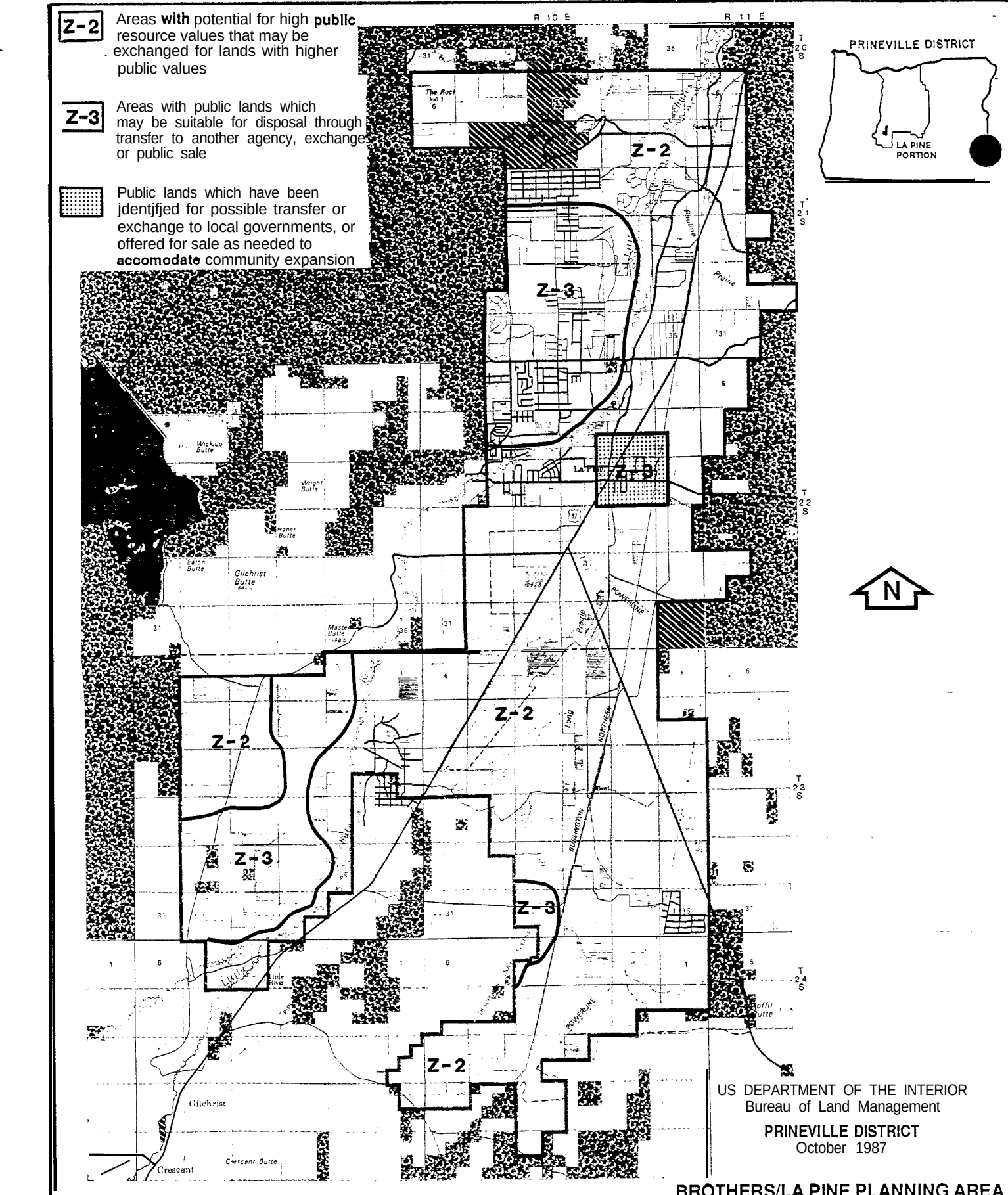
BROTHERS/LA PINE PLANNING AREA

MAP 4
Land Tenure
Brothers Portion



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October 1987

BROTHERS/LA PINE PLANNING AREA

MAP 5
Land Tenure
La Pine Portion

Table 4. Land Tenure Zone Acreages by County, Brothers/LaPine Planning Area

County	Zone 1 Public Acres	Zone 2 Public Acres	Zone 3 Public Acres	Total Public Acres
Crook	113,164	370,596	22,565	506,325
Deschutes	43,247	443,389	1,791	488,427
Harney	0	0	1,080	1,080
Klamath	0	23,858	2,692	26,550
Lake	0	92,705	0	92,705
TOTAL	156,411	930,548	28,128	1,115,087

Zone 1 delineates lands which have been identified as having national or statewide significance: they are identified for retention in public ownership. These lands possess significant visual, wildlife, watershed, wilderness, recreation, vegetative and/or cultural values.

Public lands in Zone 2 have potentially high resource values for timber, recreation, riparian, watershed, cultural and/or wildlife. They are identified for retention or possible exchange for land with higher resource values or transfer through the Recreation and Public Purposes Act (R&PP).

Public lands in Zone 3 are scattered, isolated tracts with generally unknown resource values. They are lands potentially suitable for transfer or disposal if significant recreation, wildlife, watershed, special status species and/or cultural values are not identified. Those public lands which may be considered for disposal are listed in Appendix J.

Rights of Way/Recreation and Public Purposes

Public lands will continue to be available for rights-of-way, including multiple use and single use utility/transportation corridors following existing routes, communication sites and roads. Issuance of leases and/or patents under the Recreation and Public Purposes Act and other permits or leases for development of public lands will continue. Applications will be reviewed on an individual basis for conformance with the Brothers/LaPine RMP/EIS to minimize conflicts with other resources or users.

A block of public land containing approximately 25,000 acres located east of U.S. Highway 97 between Bend and Redmond possesses high public values. This is due to its proximity to the expanding communities of Bend and Redmond as well as access to major highways, the railroad and the Redmond Municipal Airport. It also provides important open space and dispersed recreation opportunities. This land will be retained as undeveloped open space until such time as it may be transferred to another public entity to accommodate community expansion needs or used for other public purposes.

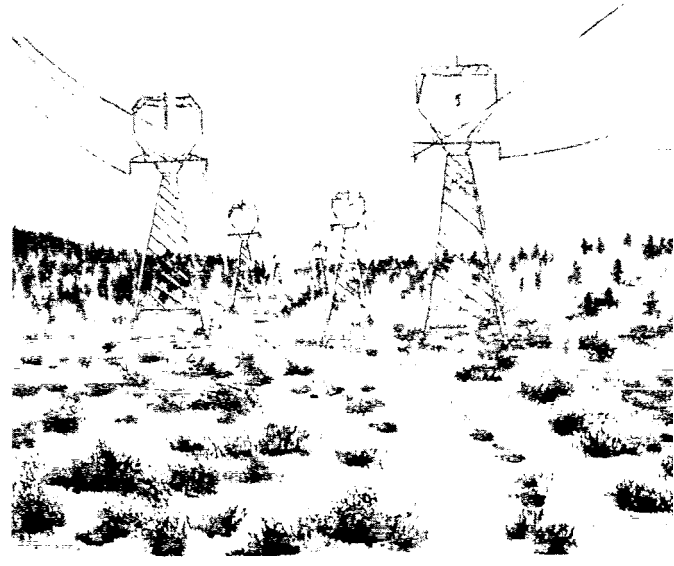
Withdrawal Review

Review of other agency withdrawals are scheduled for completion by 1991. These withdrawals may be continued, modified or revoked. Upon revocation or modification, part or all of the withdrawn land may revert to BLM management.

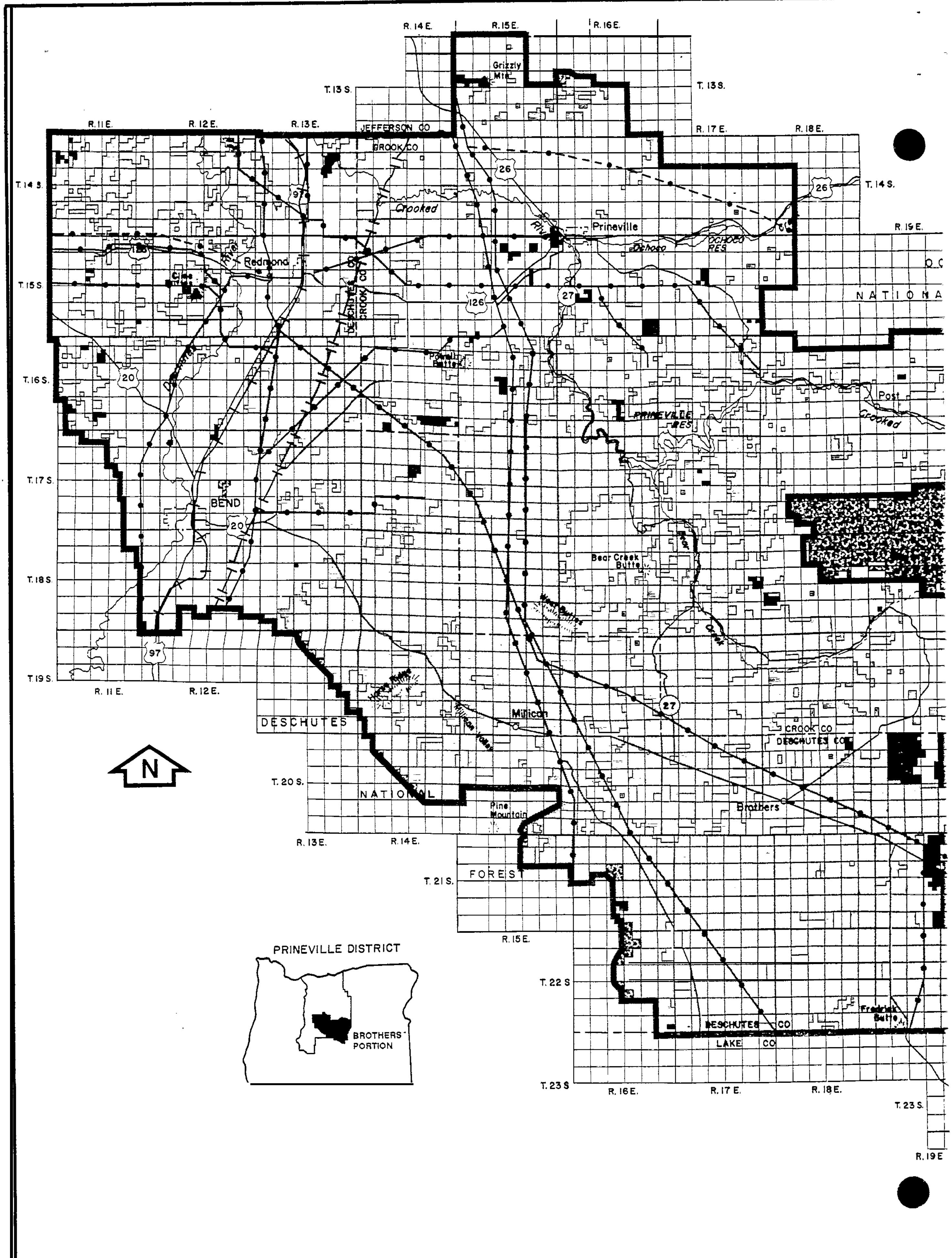
Utility and Transportation Corridors

All utility/transportation corridors identified by the Weste Regional Corridor Study (1986), will be designated without further review. The corridors are displayed on Maps 6 and 7.

All rights of way applications will be reviewed using the criteria of following existing corridors wherever practical avoiding proliferation of separate rights-of-way and maintaining a corridor width not to exceed 2,000 feet.



Utility Corridor near Brothers



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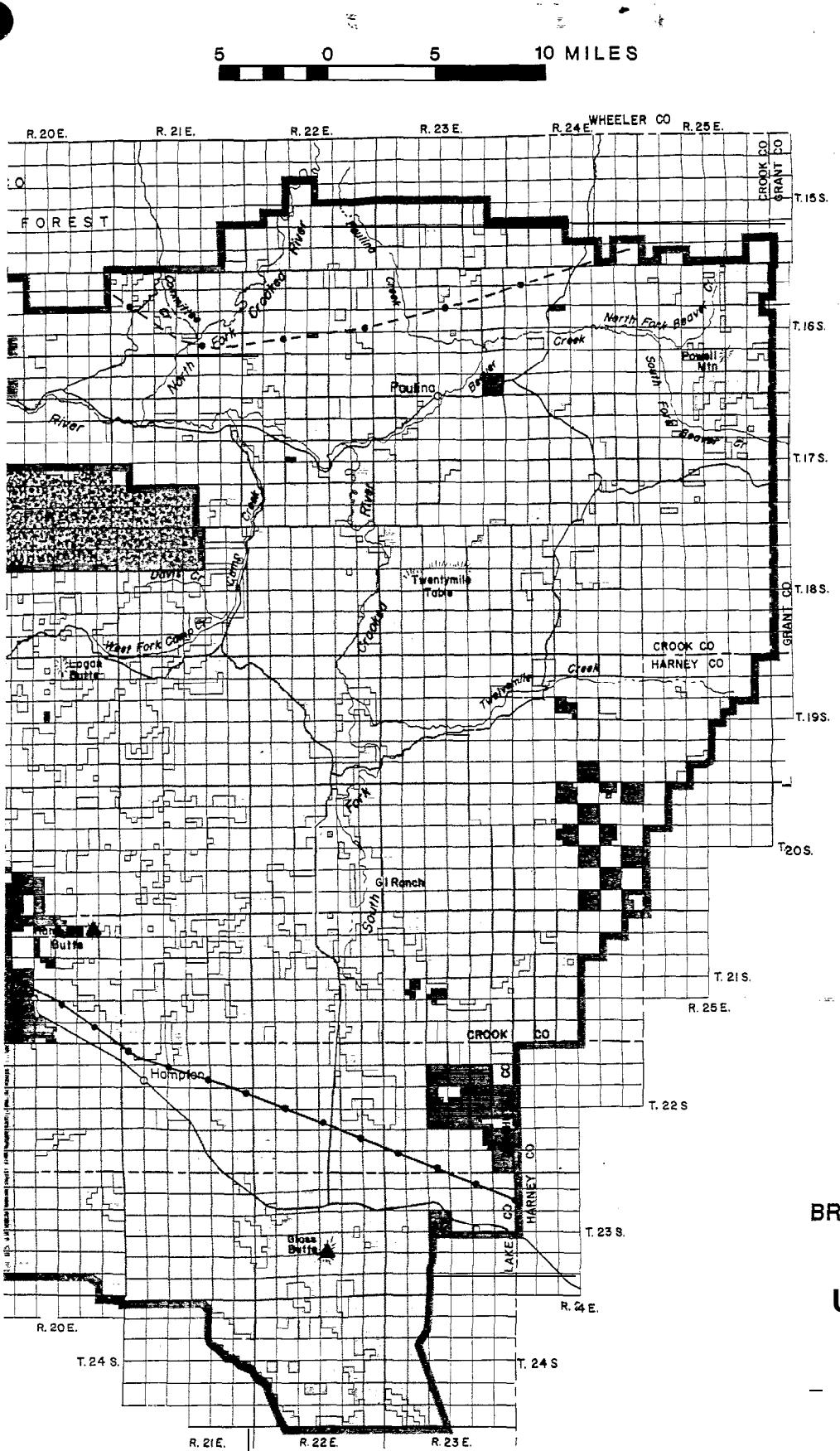
Grizzly Mtn.
T. 13 S.
R. 11 E.
R. 12 E.
R. 13 E.
JEFFERSON CO
CROOK CO
R. 17 E.
R. 18 E.
T. 14 S.
26
97
Crooked
River
Prineville
R. 19 E.
126
Redmond
Cline
Ochoco
OCHOCO RES
T. 15 S.
DESCHUTES CO
CROOK CO
27
126
NATIONA
Powell Butte
T. 16 S.
20
Deschutes River
Post
Crooked
PRINEVILLE RES
T. 17 S.
BEND
20
Bear Creek Butte
Bear
T. 18 S.
Creek
97
T. 19 S.
R. 11 E.
R. 12 E.
Horse Ridge
Millican Valley
Millican
27
DESCHUTES
CROOK CO
DESCHUTES CO
N
T. 20 S.
NATIONAL
Pine Mountain
Brothers
R. 13 E.
R. 14 E.
T. 21 S.
FOREST
R. 15 E.
PRINEVILLE DISTRICT
BROTHERS PORTION
T. 22 S
Fredrick Butte
DESCHUTES CO
LAKE CO
T. 23 S
R. 16 E.
R. 17 E.
R. 18 E.
T. 23 S.
R. 19 E



H I- Pipeline

Railroad

Powerline

Proposed Powerline

Developed Communication Sites

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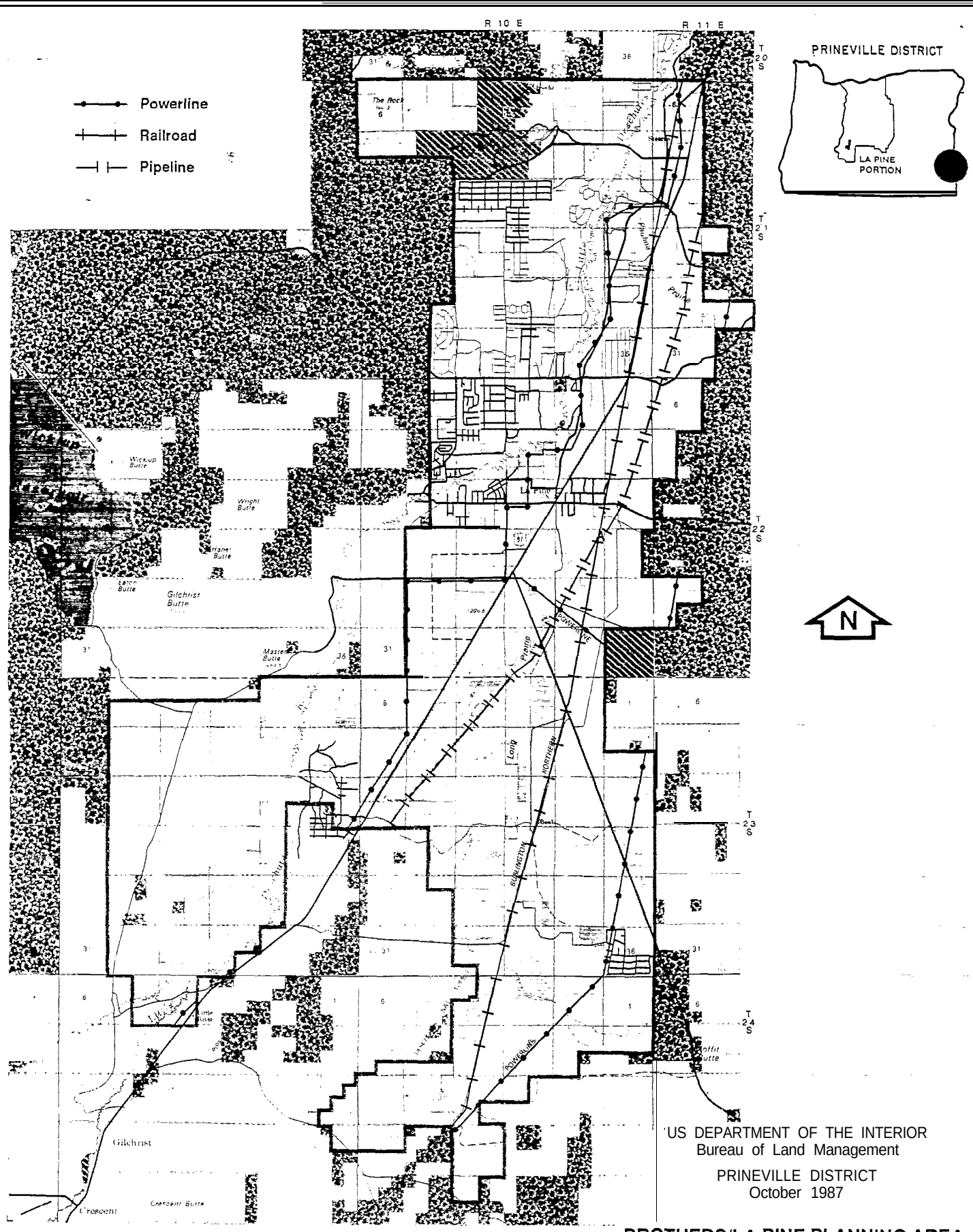
BROTHERS/LA PINE PLANNING AREA

MAP 6
Utility/Transportation Corridors, Communication Sites – Brothers Portion



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BROTHERS/LA PINE PLANNING AREA

MAP 7
Utility/Transportation Corridors
La Pine Portion

Land Sales

Sales of public land are conducted under the authority of Section 203 of the Federal Land Policy and Management Act of 1976 (FLPMA) which requires that one of the following conditions exist before land is offered for sale:

1) Such tract, because of its location or other characteristics, is difficult or uneconomical to manage as part of the public lands and is not suitable for management by another federal department or agency; or

2) Such tract was acquired for a specific purpose and the tract is no longer required for that or any other federal purpose: or

3) Disposal of such tract will serve important public objectives, including but not limited to, expansion of communities and economic development, which cannot be achieved prudently or feasibly on land other than public land and which outweigh other public objectives and values. including. but not limited to, recreation and scenic values, which would be served by maintaining such tract in federal ownership.

Land Exchanges

Exchange of public land under Section 206 of FLPMA requires:

1) A determination that the public interest will be well served by making an exchange:

2) Lands to be exchanged are located in the same state: and

3) Exchanges must be for equal value but differences can be.equalized by payment of money by either party not to exceed 25 percent of the total value of the lands transferred out of federal ownership. Exchanges will be made only when they will enhance public resource values and only when they improve land patterns and management capabilities of both private and public lands within the planning area by consolidated ownership and reducing the potential for conflict land use.

Monitoring the **Brothers/LaPine** Resource . Management Plan

The Brothers/LaPine RMP will be monitored on a continual basis to allow up-to-date evaluations and to respond to changing situations. Management actions arising from activity plan decisions will be evaluated to ensure consistency with RMP objectives.

The RMP will be formally evaluated at intervals not to exceed 5 years. Ail plan monitorrng will assess:

1) Whether management actions are resulting in satisfactory progress toward objectives:

2) Whether actions are consistent with current polic

3) Whether original assumptions were correctly applied and impacts correctly predicted:

4) Whether mitigation measures are satisfactory:

5) Whether the RMP is still consistent with the plar and policies of state and local government. other federal agencies and Indian tribes:

6) Whether new data are available that would requi alteration of the plan.

As part of plan evaluation, concerned government entiti will be requested to review the plan and advise the District Manager of its continued consistency with their officially-approved plans. programs and policies. Adviso groups will be consulted during plan evaluation.

Upon completion of periodic evaluation. or in the event that modifying the plan becomes necessary, the Prinev District Manager will determine what, if any, changes ar necessary to ensure that management actions are consistent with RMP objectives. If the District Manager finds that a plan amendment is necessary, an environmental analysis of the proposed change will be conducted and a recommendation on the amendment made to the State Director. If approved. it may be implemented 30 days after public notice. A plan amendment may be initiated because of need to consic monitoring findings, new data, new or revised policy or proposed action that may result in a change in the sco of resource uses or a change in the terms. conditions and decisions of the approved plan.

Potential minor changes, refinements or clarifications ir the plan may take the form of maintenance actions. Maintenance actions Incorporate minor data changes a are usually limited to minor refinements and documentation. Plan maintenance will not result in expansion of the scope of resource uses or restrictions change the terms, conditions and decisions of the approved RMP. Maintenance actions are not considere plan amendments and do not require a formal public involvement and Interagency coordination process.

Activity Plan Monitoring

On-site inspection of activity plans and associated projects will be made periodically to determine if the objectives of the activity plan or project are being achieved or if unacceptable unanticipated impacts are occurring.

Monitoring systems for resource management programs (such as wildlife habitat, visual, cultural or recreation) will be developed and an implementation schedule published in the record of decision.

A key indicator concept of monitoring will be utilized to determine what change agents are to be monitored for each action plan. An interdisciplinary team of resource specialists will identify the change agents to be monitored and the required inspection frequency.

A district-wide implementation record of all ongoing activities and associated monitoring activities will be maintained in the Prineville District Office. This record will help to determine monitoring obligations and annual work plan commitments.

Water quality monitoring will be carried out in accordance with executive orders, specific laws, BLM policy and the existing Memorandum of Understanding with the Oregon Department of Environmental Quality. Water quality and vegetation monitoring will be in accordance with the Rangeland Monitoring in Oregon and Washington Handbook, and the Prineville District Monitoring Plan. Copies of both are available from the Prineville District Office.

Existing Management Direction for Brothers Portion of **Brothers/LaPine** Planning Area

In 1982, the BLM published the Brothers Grazing Management Program Environmental Impact Statement: the Record of Decision and Rangeland Program Summary (RPS) followed in 1983 and an RPS update in 1986. In addition, the Brothers Management Framework Plan was published in 1982. These documents contained management direction for grazing, vegetation, riparian and forest management, and wildlife habitat management for the Brothers portion of the Brothers/LaPine Planning Area. These programs and their accomplishments are summarized below using data compiled in 1982.

Grazing Management

Decisions related to livestock grazing in the Brothers portion of the planning area are summarized in Table 5 and Appendix K.

Grazing systems which encourage upward change in ecological status have been identified and will be applied to more than 99 percent of the Brothers portion, with the remainder to be managed under a system which will maintain existing conditions. Of the total Brothers portion, 2,003 acres are excluded from livestock grazing.

Table 5. Brothers Grazing Management Program, Brothers/LaPine Planning Area

Forage Allocation	Currently Available Forage	Long-Term Forage Allocation
Livestock (AUMs)	81,555	132,795
Wildlife (AUMs)[1/]	5,286	7,427
Type of Range Development	**Completed**	**Identified in Brothers Grazing RPS**
Fence (miles)	72	234
Spring (each)	4	15
Pipeline (miles)	74	422
Wells (each)	1	1
Reservoirs (each)	0	22
Waterholes (each)	0	2
Vegetation Manipulation		
Spray/seed (acres)	0	3,600
Burn/seed (acres)	9,069	53,130
Brush control/spray (acres)	0	39,100
Brush control/burn (acres)	800	60,481
Juniper control (acres)	4,810	103,330

1/ Competitive AUMs. Additional AUMs available from noncompetitive forage production.

Source: Brothers Rang&land Program Summary, 1986

Range developments are expected to improve range conditions while increasing available forage for livestock. An increase of 78 percent from current allocations is expected by the year 2000, providing range developments and recommended grazing management systems are implemented as scheduled and ecological status improves as predicted.

Table 6 summarizes ecological status on upland and riparian vegetation at the time of preparation of the Brothers Grazing EIS and anticipated as a result of implementing the Brothers grazing management program.

Table 6. Present and 20-Year Projected Ecological Status, Brothers Portion, Brothers/LaPine Planning Area

Ecological Status (acres)	Present[1] Condition (Public acres)	Projected Condition (Public acres)
All vegetation types		
PNC[2] (excellent)	24,010	41,007
Late-seral (good)	234,657	603,976
Mid-seral (fair)	565,928	260,615
Early-seral (poor)	185,499	45,641
Other[3]	57,483	116,338
TOTAL[4]	1,067,577	1,067,577
Stream riparian		
PNC[2] (excellent)	20	148
Late-seral (good)	97	134
Mid-seral (fair)	204	118
Early-seral (poor)	8 6	7
TOTAL	407	407
Reservoir riparian		
PNC[2] (excellent)	11	11
Late-seral (good)	12	12
Mid-seral (fair)	28	29
Early-seral (poor)	285	284
TOTAL	336	336

[1] 1982 data. Acreage differs slightly from current Brothers portion total due to land tenure adjustments made since 1982.
[2] Potential natural community.
[3] Other: Vegetation no longer in "natural" condition. For example, abandoned farmland or seedings. Rockland and sand dunes also included.
[4] Total includesriparian areas.

Source: Brothers Grazing Draft Environmental Impact Statement, 1982.

Table 7. Vegetation Types, Brothers Portion, Brothers/LaPine Planning Area

Vegetation Type	Public Acres[1]
Western juniper	
Juniper-big sagebrush	**393,580**
Juniper-low sagebrush	48,525
Juniper-bitterbrush	5,839
Juniper-bunchgrass	1,795
Big sagebrush	**398,778**
Low sagebrush	
Low sagebrush bunchgrass	131,205
Intermittent lake beds	4,464
Other Brush Dominant	17,924
Conifer/mountain shrub	
Ponderosa pine	11,766
Mixed conifer	920
Mahogany dominant	354
Greasewood bunchgrass	1,137
Grass/other	
Wet meadow	100
Aspen	45
Crested wheatgrass	40,821
Bunchgrass	9,581
Riparian	74 3
TOTAL	1,067,577

[1] Based on 1982 data. Acreage differs slightly from current Brothers portion total due to land tenure adjustments made since 1982.

Source: Brothers Grazing Draft Environmental Impact Statement, 1982.

Vegetation Management

Upland Vegetation

Vegetation in the Brothers'portion is managed to maintain or improve ecological status on all grazing allotments. Vegetative condition is managed for a goal of mid-seral (40 percent of vegetative potential) to the lower end of late-seral (60 percent of potential). This is accomplished by the amount of forage allocated for livestock grazing. the grazing management system utilized and the range treatments or developments implemented. Table 7 summarizes vegetative types for the Brothers portion of the Brothers LaPine Planning Area.

Forestland Management

There are 5,746 acres of commercial forestland, mostly Douglas-fir and ponderosa pine, in the Brothers portion the planning area. They are generally located in the transition zone between the ponderosa pine/fir stands o the Ochoco Mountains and the sagebrush/juniper land c the high desert. A potential annual sustainable harvest c 463,000 board feet from 5,746 acres has been identifie Table 8 summarizes the forestland management designations including land set aside to protect wildlife habitat, streams, riparian and recreational uses.

Timber harvest on public lands

Table 8. Forestland Management, Brothers Portion, Brothers/LaPine Planning Area

Forestland Type	Public Acres
Total Forestland[1/]	12,497
Forestland unavailable for production of forest products	3,851
Forestland available for production of forest products	8,646
Forestland set aside for other uses	2,900
Forestland available for intensive production of forest products	5,746

[1/]Total forestland includes a portion of ponderosa pine and mixed conifer vegetative types listed on Table 7.

Wildlife Habitat Management

Wildlife species differ widely in their habitat requirements: Table 9 summarizes habitat types and species populations. Decisions made in the Brothers Grazing EIS provide a variety of vegetative successional stages an corresponding variety of habitats for wildlife.

The anticipated long-term forage available to wildlife would accommodate ODFW proposed population increases of 27 percent for deer, 23 percent for antelope and 71 percent for elk.

The grazing systems implemented in deer and antelope winter range are expected to improve or maintain habitat conditions on 97 percent of the crucial deer winter range and 9.5 percent of the crucial antelope winter range.

Fish Habitat Management

There are about 96 miles of stream on public lands in the Brothers portion that have fish or the potential to support fish. Eighty-eight miles presently contain fish populations. There were 18 miles of fish habitat rated in good condition, 40 miles in fair condition and 38 miles in poor condition. None of the streams were rated in excellent condition. Fish habitat is being improved through grazing management or livestock exclusion along 46 miles of stream, 55 miles of stream stabilization, 620 stream structures and 15 acres of debris removal.

Table 9. Wildlife Habitat and Populations, Brothers Portion, Brothers/LaPine Planning Area

Species	Habitat (Public Acres)[1/]	Present Population[2/]
Mule Deer		
Crucial winter range	142,914	13,800
Summer range-	1,067,577	11,200
Antelope		
Crucial winter range	64,312	1,600
Summer range	739,968	1,640
Elk		
Winter range	38,912	70
Summer range	35,200	45
Water Associated Birds (includes surface water acres)	1,218	Moderate to abundant?
Upland Game Birds		Low to
Stream riparian habitat	407	moderate [3/]
Nongame Species		Moderate to
Yearlong range	1,067,577	abundant[3/]

[1/]Based on 1982 data, acreage differs slightly from current Brothers portion total due to land tenure adjustments made since 1982.
[2/]Based on ODFW, 1982 data.
[3/]Based on historical populations.

Riparian Management

Stream riparian areas are protected and managed to provide full vegetative potential. This is accomplished by grazing management and fence construction and maintenance if warranted by multiple-use benefits. Where fencing is not feasible, livestock use is managed to achieve 60 percent of vegetative potential.

The Oregon/Washington Riparian Enhancement Plan provides overall guidance and direction for management of riparian areas within the planning area. The overall goal of this plan is to maintain, restore or improve riparian areas to achieve a healthy and productive ecological condition for maximum long-term multiple use benefits and values.

The plan details several goals and objectives for the planning area including management strategies, proposed projects, implementations and monitoring. The plan meets or exceeds all of the goals and decisions set forth in the Brothers RPS.

Livestock exclusion or restricted use along 46 miles of stream, 55 miles of stream stabilization, 620 stream structures and 15 acres of debris removal will maintain or improve water quality and fish habitat. New water development and fencing is expected to improve livestock distribution, providing better forage utilization and reducing the impact of concentration areas, Riparian vegetation is expected to improve on 75 percent of the stream riparian habitats. The remaining acres are expected to be maintained in current good to excellent ecological status.

Reservoir riparian habitats are expected to improve through fencing on 7 percent of the area and to be maintained or slightly improved through grazing management on the remaining 93 percent. Reservoir riparian was created with the establishment of livestock waters. It is not a naturally occurring situation and generally does not have high habitat potential. Where exceptional riparian potential does exist, measures have been taken to provide both livestock water and riparian improvement for wildlife species.

Fire Management

The Brothers Grazing EIS identified approximately 114,000 acres for prescribed burning to improve ecological status. There has been approximately 10,000 acres of prescribed burning carried out.

Description of Alternatives

Table 10 summarizes the management direction for each of the six alternatives and indicates what the goals for each of the nine issues would be under each alternative. It is provided as a means of comparing the differences between alternatives. Table 10 also indicates the various ways in which conflicts between resources would be resolved. For example, under Alternative A a conflict between a commodity resource such as timber and a natural value such as visual quality would generally be resolved in favor of timber production. Under Alternative F the same conflict would probably be resolved in favor of preserving visual quality. The other alternatives portray a variety of mid-range options. Tables 11 through 18 provide specific goals for forestland harvest, livestock grazing, wild horses, fire suppression, off-road vehicle use, areas of critical environmental concern, and mineral leasing under each alternative.

Maps 8 through 13 identify specific areas that would be limited or closed to ORV use under each alternative.

Appendix H lists proposed rangeland developments by alternative.

Good condition riparian vegetation on Bear Creek

Management Direction by Alternative

Table 10. Summary of Alternatives, Brothers/LaPine Planning Area

---Alternative-A

Goal: Emphasize Commodity Production and Enhancement of Economic Benefits

Forestland
Harvest 16 to 18 MMbf annually in the LaPine portion from 2,000 to 3,500 acres. Utilize all dead, dying or high-risk trees. Intensively manage approximately 178,000 acres of woodlands in the Brothers portion for post, pole and commercial firewood harvest.

Livestock Grazing
Allocate up to 19,697 AUMs in the LaPine portion. Construct 138 miles of fence and 14 waterholes. Implement intensive grazing management on all allotments.

Wild Horses
Remove wild horses from the area in which they now roam. Allocate forage which would have been utilized by horses to livestock grazing.

Wildlife Habitat Management
Meet minimum requirements in accordance with existing BLM policy for wildlife habitat diversity. Retain no wildlife trees. Meet ODFW management objective numbers for deer and elk.

Fire Management
Provide aggressive suppression for 800,000 acres (values at risk classes 3 through 6). Designate 300,000 acres as conditional suppression and fire use areas.

Recreation
Limit ORV use on 7,000 acres; close 1,740 acres to ORV use. Remaining acres open to ORV (Map 8). Expand Millican Valley ORV area to 85,000 acres.

Manage 51,280 acres (10 high-to-moderate quality areas) for rockhounding.

Areas of Critical Environmental Concern
Designate Horse Ridge Research Natural Area and five additional areas totalling 1,560 acres as ACEC's.

Land Tenure and Access
Maintain or increase public land holdings in Zone 1. Consider exchange of Zone 2 and 3 lands for land with higher public value with emphasis on acquisition of forestland, grazing land and mineral values. Sell Zone 3 land if it meets FLPMA criteria. Acquire legal access to inaccessible Zone 1 and 2 land, identified on Maps 4 and 24.

Sell public land in agricultural use or within LaPine core area. Transfer to local governments or exchange public land near Bend, Redmond and Prineville to accommodate community expansion.

Minerals
Public lands would remain open for exploration (including geophysical) and development of mineral resources and related rights-of-way. Fluid mineral leasing would continue with the entire federal reserved mineral estate and 1,115,087 acres of public land open to exploration, subject to standard lease requirements and stipulations.

The restrictive no surface occupancy (NSO) stipulation for fluid minerals exploration and development would be removed from 16,480 acres around Prineville Reservoir. The seasonal restriction on 44,580 acres of deer wintering areas and 3,560 acres of sage grouse strutting grounds along with protective stipulations on approximately 300,000 acres of land that are visually sensitive or of high scenic quality would also be removed.

Alternative B

Goal: **Emphasize Commodity** Production While Accommodating Natural Values

Forestland
Harvest 12 to 14 MMbf annually in the LaPine portion from 1,500 to 2,500 acres. Manage 300 acres in LaPine portion for posts, poles and commercial firewood harvest. Manage 156,000 acres of woodland in the Brothers portion for posts, poles and firewood harvest.

Livestock Grazing
Allocate up to 16,000 AUMs in the LaPine portion. Construct 98 miles of new fence and 14 waterholes. Implement intensive grazing management systems on all allotments.

Wild Horses
Manage for average herd size of 15. Exclude 2,000 acres to protect riparian area. Allocate 375 AUMs to wild horses. Allow wild horses to roam a 25,000 acre area.

Wildlife habitat Management
Manage to maintain 50 percent of optimum habitat diversity. Retain 50 percent of wildlife trees. Meet ODFW management objective numbers for deer and elk.

Fire Management
Provide aggressive suppression on 700,000 acres (values at risk classes 4 to 6). Designate 400,000 acres as conditional suppression and fire use areas.

Recreation
Limit ORV use on 39,899 acres; close 5,240 acres. Remaining acres open for ORV use (Map 9). Expand Millican Valley ORV area to 71,000 acres.

Manage 47,180 acres (6 high to moderate quality areas) for rockhounding.

Areas of Critical Environmental Concern
Designate Horse Ridge Research Natural Area and nine areas as ACEC's (35,556 acres).

Land Tenure and Access
Maintain or increase public land holdings in Zone 1. Consider exchanges in Zone 1 if lands with even higher public value could be acquired. Exchange Zone 2 lands for lands of higher public value (Zone 1). Dispose of Zone 3 land through exchange or sale if it meets FLPMA criteria. Acquire legal access to 4 tracts of public land with high recreation values as shown on Maps 4 and 24.

Authorize existing agricultural use.

Sell or lease public land in the LaPine core area.

Transfer to local governments or exchange public land near Bend, Redmond and Prineville as needed to accommodate community expansion.

Minerals
Public lands would remain open for exploration (including geophysical) and development of mineral resources and related rights-of-way. Fluid mineral leasing would continue with the entire federal reserved mineral estate and 1,115,087 acres of public land open to exploration, subject to standard lease requirements and stipulations.

The restrictive no surface occupancy (NSO) stipulation for fluid minerals exploration and development would be removed from 16,480 acres around Prineville Reservoir. The seasonal restriction on 44,580 acres of deer wintering areas and 3,560 acres of sage grouse strutting grounds along with protective stipulations on approximately 300,000 acres of land that are visually sensitive or of high scenic quality would also be removed.

Alternative C

Goal: Continue Existing Management (No Action)

Forestland
Harvest 7 to 9 MMbf annually in the LaPine portion from 1,000 to 1,400 acres. Manage 200 acres in the LaPine portion for posts, poles and commercial firewood harvest. Manage 156,000 acres in the Brothers portion for posts, poles and firewood harvest.

Livestock Grazing
Allocate 3,301 AUMs in the LaPine portion. Build no new fences or waterholes. Continue to work with operators to encourage improved management.

Wild Horses
Allow wild horse herd size to be controlled by natural events. Allocate 210 AUMs of forage to wild horses. Allow wild horses to roam a 17,000-acre area.

Wildlife Habitat Management
Manage to maintain 50 percent of optimum habitat diversity. Retain 50 percent of wildlife trees. Meet ODFW management objective numbers for deer and elk.

Fire Management
Provide aggressive suppression for 993,000 acres. Manage 107,000 acres as conditional suppression and fire use areas.

Recreation
Limit ORV use on 204,858 acres; close 4,615 acres to ORV use. Remaining acres open for ORV use (Map 10). Millican Valley ORV area remains at 60,000 acres.

Manage 45,160 acres (4 high quality areas) for rockhounding.

Areas of Critical Environmental Concern
Designate Horse Ridge Research Natural Area totalling 600 acres as ACEC. Designate no other ACECs.

Land Tenure and Access
Retain Zone 1 lands. Consider exchange of Zone 2 and 3 lands for land with higher public values. Approximately 200 to 300 acres per year would be sold if they meet FLPMA criteria. Authorize agricultural use where no significant resource conflicts occur. Sell or lease public land within the LaPine core. Acquire access for Zone 1 land as opportunities arise.

Transfer to local governments or exchange public land near Bend, Redmond and Prineville as needed for community expansion.

Minerals
Public lands would remain open for exploration (including geophysical) and development of mineral resources and related rights-of-way. Fluid mineral leasing would continue with the entire federal reserved mineral estate and 750,467 acres of public land open to exploration subject to standard lease requirements and stipulations. The no surface occupancy stipulation on 16,480 acres around Prineville Reservoir and seasonal restrictions on 44,580 acres of deer wintering areas and 3,560 acres of sage grouse strutting grounds would continue. Restrictions to protect 300,000 acres of land that are visually sensitive or of high scenic quality would be continued.

Alternative D

Preferred Alternative

Forestland
Harvest approximately 8 MMbf annually from 1,000 to 1,400 acres in t LaPine portion. About 75 percent harvested would be high risk green timber and sold as one or more large sales. The remaining 25 percent would come from small sales of dead trees located within the Highway and 31 corridors.

Manage 200 acres in the LaPine portion for posts, poles and commerc firewood. Manage 156,000 acres of woodlands in the Brothers portion posts, poles and firewood.

Livestock Grazing
Allocate up to 16,000 AUMs in LaPine portion. Construct 98 miles fen and 14 waterholes if operators assume development expense. Impleme intensive grazing management systems.

Wild Horses
Remove wild horses. Allocate 210 AUMs forage which would have be consumed by horses to wildlife and watershed.

Wildlife Habitat Management
Provide optimum habitat diversity for wildlife. Retain 70 percent of wild trees. Meet ODFW management objective numbers for deer and elk.

Fire Management
Provide aggressive suppression for 500,000 acres (values at risk class 4 to 6). Designate 600,000 as conditional suppression and fire use are

Recreation
Limit ORV use on 267,076 acres; close 10,722 acres to ORV use. Remaining acres open to ORV use (Map 11). Expand Millican Valley ORV area to 65,000 acres.

Manage 47,180 acres (6 high to moderate quality areas) for rockhounding and propose the Secretary of Interior withdraw Congleto Hollow/Liggett Table area from mineral entry for semi-precious stones.

Areas &Critical Environmental Concern --
Designate Horse Ridge Research Natural Area and 14 areas totalling 36,916 acres as ACEC's. Designate three areas totaling 1,565 acres RNAs.

. Land **Tenure and Access**
Maintain or increase public land holdings in Zones 1 and 2. Exchange sell Zone 3 lands if they meet FLPMA criteria. Acquire legal access to inaccessible public lands in Zone 1 and 2 as shown on Maps 4 and 2

Authorize agricultural use of public land if no conflict with public values exists.

Exchange, lease or sell land in the LaPine core area. Transfer to local governments or exchange public land near Bend, Redmond and Prine as needed to accommodate community expansion.

Minerals
Public lands would remain open for exploration (including geophysical) and development of mineral resources and related rights-of-way. Fluid mineral leasing would continue with the entire federal reserved minera estate and 750,467 acres of public land open to exploration subject to standard lease requirements and stipulations. The no surface occupar stipulation on 16,480 acres around Prineville Reservoir and seasonal restrictions on 44,580 acres of deer wintering areas and 3,560 acres sage grouse strutting grounds would continue. Restrictions to protect 300,000 acres of land that are visually sensitive or of high scenic qua would be continued.

Exceptions to the no surface occupancy and visual restriction may be permitted if certain criteria are met.

Alternative E

Goal: Emphasize Natural Values While **Accommodating Commodity Production**

Forestland
Harvest 7 to 9 mmbf annually in the LaPine from approximately 1,000 to 1,400 acres. Manage 100 acres in LaPine for post, pole and commercial firewood production. Manage 156,000 acres of woodland in the Brothers portion for posts, poles and firewood.

Livestock **Grazing**
Allocate 2,996 AUMs in the LaPine portion. Construct 3 miles of livestock exclusion fence. Exclude livestock grazing from approximately 400 acres adjacent to the Little Deschutes River and Crescent Creek.

Wild Horses
Manage for herd size of 50. Exclude 2,000 acres to protect riparian area. Allocate 1,050 AUMs to wild horses. Remove four and one-half miles of fence. Allow horses to roam a 25,000-acre area.

Wildlife Habitat Management
Provide optimum habitat diversity for migrating mule deer and other wildlife. Retain 70 percent of wildlife trees. Meet ODFW objective numbers for deer and elk.

Fire Management
Provide aggressive suppression on 500,000 acres values at risk classes 4 to 6. Designate 600,000 acres as conditional suppression and fire use areas.

Recreation
Limit ORV use on 276,996 acres; close 12,102 acres to ORV use. Remaining acres open to ORV use (Map 12). Millican Valley ORV area reduced to 53,000 acres.
Manage 42,600 acres (2 high quality areas) for rockhounding.

Areas of Critical Environmental Concern
Designate Horse Ridge Research Natural Area and 12 additional areas as ACEC's totalling 36,916 acres.
Designate three areas totalling 1,565 acres as RNAs.

Land Tenure and Access
Maintain or increase public land holdings in Zones 1 and 2. Exchange Zone 3 lands for higher public value lands. If there is no opportunity for exchange, offer Zone 3 land for sale if it meets FLPMA criteria. Acquire legal access to two large parcels of inaccessible Zone 1 land as shown on Maps 4 and 24.

Authorize agricultural use only where no significant conflicts with other uses of the public land occur. Some tracts of public land would be available for lease or sale in the LaPine core.
Exchange public land near Bend, Prineville and Redmond as needed to accommodate community expansion.

Minerals
Public lands would remain open for exploration (including geophysical) and development of mineral resources and related rights-of-way. Fluid mineral leasing would continue with the entire federal reserved mineral estate and 750,467 acres of public land open to exploration subject to standard lease requirements and stipulations. The no surface occupancy stipulation on 16,480 acres around Prineville Reservoir and seasonal restrictions on 44,580 acres of deer wintering areas and 3,560 acres of sage grouse strutting grounds would continue. Restrictions to protect 300,000 acres of land that are visually sensitive or of high scenic quality would be continued. No exceptions to the no surface occupancy, visual, or seasonal wildlife restrictions would be allowed.

Alternative F

Goal: Emphasize Natural **Values**

Forestland
No commercial timber harvest would occur. Post, pole and commercial firewood harvest would occur only to enhance other resource values.

Livestock Grazing
No livestock grazing would be allowed on public lands in the LaPine portion. Construct 62 miles of livestock exclusion fence.

Wild Horses
Remove all wild horses. Allocate 210 AUMs of forage to wildlife and watershed.

Wildlife Habitat Management
Manage wildlife habitat diversity at optimum condition for migrating deer and at slightly less than that for other species. Retain 100 percent of wildlife trees. Meet ODFW management objective numbers for deer and elk.

Fire **Management**
Provide aggressive suppression on 200,000 acres. Designate 900,000 acres as conditional suppression and fire use areas.

Recreation
Limit ORV use on 302,634 acres; close 15,144 acres to ORV use. Remaining acres open to ORV use (Map 13). Millican Valley would be closed to organized ORV use.

No land would be managed for rockhounding. Existing disturbed areas would be reclaimed.

Areas **of** Critical Environmental Concern
Designate Horse Ridge Research Natural Area and 11 additional areas totalling 42,329 acres as ACECs.

Designate three areas totalling 1,565 acres as RNAs.

Land Tenure and Access
No land would be offered for sale. No agricultural use would be authorized. Areas used for agricultural purposes would be reclaimed. No public land within the LaPine area or near Bend, Redmond or Prineville would be disposed of. Acquire through exchange two easements to provide public access for primitive and unconfined recreation use.

Minerals
Public lands would remain open for exploration (including geophysical) and development of mineral resources and related rights-of-way where no significant conflicts with visual, watershed and wildlife values exist. Fluid mineral leasing would continue with the entire federal reserved mineral estate and 708,138 acres of public land open to exploration subject to standard lease requirements and stipulations. Leases on a total of 42,329 acres would not be renewed as they expired to protect areas of critical environmental concern. The no surface occupancy stipulation on 16,480 acres around Prineville Reservoir, along with seasonal restrictions on 44,580 acres of deer wintering areas and 3,560 acres of sage grouse strutting grounds would be continued. Restrictions to protect 300,000 acres of land that are visually sensitive or of high scenic quality would be continued. No exceptions to protective stipulations would be allowed.

Table 11. Forestland Harvest Levels by Alternative, LaPine Portion, Brothers/LaPine Planning Area

	Alt. A Commodity Production	Alt. B Commodities w/Natural Values	Alt. C Existing Management	Alt. D Preferred Alternative	Alt. E Natural Values w/ Commodities	Alt. F -- Natural Values
Approximate annual harvest (MMbf)	16-18	12-14	7 - 9	7-9	7-9	
Approximate total[1/] harvest (MMbf)	100	90	80	70	60	
Harvest period (years)	6	7	10	7	8	

1/ During the life of the RMP

Table 12. Initial and Predicted Peak Long-Term Livestock Forage Allocation, LaPine Portion, Brothers/LaPine Planning Area

Allotment Number	Allotment Name	Acres Public Land	Category	Alt. A Commodity Production		Alt. B Commodites w/ Natural Values		Alt. C Existing Management		Alt. D Preferred Alternative		Alt. E Natural Values w/Commodities		Alt. F Natural Values	
				Short Term	Long Term	Short Term	Long Term	Short Term	Long Term	Short Term	Long Term	Short Term	Long Term	Short Term	Long Term
7504	Brown	525	M	93	220	93	183	93	93	93	183	93	93	0	0
7509	Cliff	4,448	M	343	1,943	343	1,552	343	343	343	1,552	324	24	0	0
7536	Helliwell	360	C	60	160	60	126	60	60	60	126	60	60	0	0
7552	Miltenberger	4,693	M	656	2,100	656	1,635	656	656	656	1,635	656	656	0	0
7554	Morgart	80	C	11	35	11	28	11	11	11	28	11	11	0	0
7559	Poole	1,358	M	180	565	180	471	180	180	180	471	180	180	0	0
7574	Kellems	170	M	34	120	34	85	34	34	34	85	25	25	0	0
7575	Stearns	518	M	97	285	97	179	97	97	97	179	90	90	0	0
7586	Yager	700	M	57	244	244	244	57	57	57	244	57	57	0	0
7592	A&L Sheep	6,260	M	1,012	2,585	1,012	2,127	1,012	1,012	1,012	2,127	1,012	1,012	0	0
7594	Lebeau	23	C	6	12	6	10	6	6	6	10	6	6	0	0
7595	Finley	2,405	M	272	1,050	272	837	272	272	272	837	272	272	0	0
7597	Long Prairie	690	M	210	365	210	300	210	210	210	300	210	210	0	0
0999	Unallotted	23,651		0	10,015	0	8,223	0	0	0	8,223	0	0	0	0
TOTAL				3,031	19,697	3,031	16,000	3,031	3,031	3,031	16,000	2,996	2,996	0	0

Table 13. Grazing Systems by Management Category and Alternative, LaPine Portion, Brothers/LaPine Planning Area

Category System[1/]	Alt. A Commodity Production Number Allotments/ Acres	Alt. B Commodities w/Natural Values Number Allotments/ Acres	Alt. C Existing Management Number Allotments/ Acres	Alt. D Preferred Alternative Number Allotments/ Acres	Alt. E Natural Values w/ Commodities Number Allotments/ Acres	Alt. F Natural Values Number Allotments/ Acres
Maintain						
1	10/45,418 [2/]	10/45,418 [2/]	2/3, 095	10/45,418 [2/]	2/3,095	
2			7/12,412		7/12,302	
3			1/6,260		1/6,260	
4					110 [3/]	10/21,767
Custodial						
1						
2						
3	3/463	3/463	3/463	3/463	3/463	
4						3/463
TOTAL	13/45,881	13/45,881	13/22,230	13/45,881	13/22,230	13/22,230

1/ 1) Systems which will encourage increased density of ground cover vegetation (early spring, deferred, deferred rotation, rest rotation)
2) Systems which maintain or improve existing trends in ecological condition (light spring-summer, deferment one year in three, periodic non-use)
3) Systems which maintain existing trends in ecological condition (moderate season-long, continual non-use)
4) Exclusion

2/ Additional acres of presently unallotted and ungrazed land whould be added to existing allotments or used to create new allotments as livestock operators are willing to construct needed projects and provide required grazing management.

3/ From portions of 3 allotments.

Table 14. Allotments Occupied by Wild Horse Herd by Alternative, Brothers/LaPine Planning Area

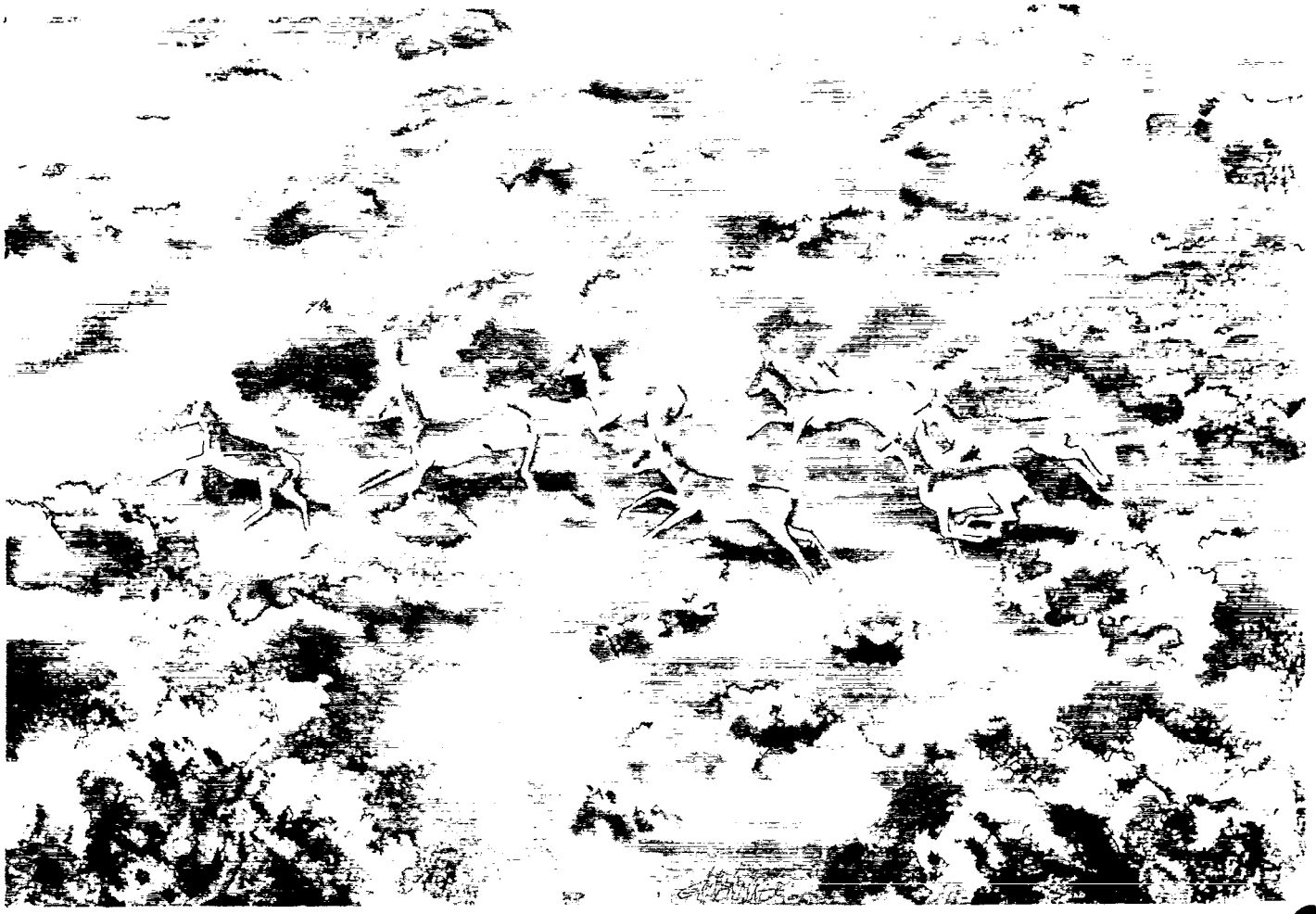
Alt. A Commodity Production	Alt. B Commodites w/Natural Values	Alt. C Existing Management	Alt. D Preferred Alternative	Alt. E Natural Values w/Commodity	Alt. F Natural Values
Total Removal	25,000 acres total (15,000 acres in Camp Creek Community Allotment and 10,000 -acres in Dagus Lake Allotment)	17,000 acres in Camp Creek Community Allotment 0 acres in Dagus Lake	Total Removal	25,000 acres total (15,000 acres in Camp Creek Community 10,000 acres in Dagus Lake)	-Total Removal

South Fork of the Crooked River Canyon

Table 15. Conditional Fire Suppression Parameters, by Alternative, Brothers/LaPine Planning Area[1/]

	Alt. A Commodity Production	Alt. B Commodites w/Natural Values	Alt. D Preferred Alternative	Alt. E Natural Values w/Commodities
Fire Size	Less than 500 ac	Less than 800 ac	Less than 1,500 ac	Less than 1,500 ac
Air Temperature	Less than 80° F	Less than 85° F	Less than 90° F	Less than 90° F
Windspeed	Less than 10 mph	Less than 15 mph	Less than 18 mph	Less than 18 mph
Fine fuel moisture	More than 10%	More than 8%	More than 5%	More than 5%
Flame length	Less than 4 ft	Less than 6 ft	Less than 10 ft	Less than 10 ft
Rate of spread	Less than 1,800 ft./hr	Less than 2,600 ft./hr	Less than 4,600 ft. hr	Less than 4,600 ft. hr

1/ Under Alternative C, there would be 107,000 acres conditional suppression identified in the Bear Creek Fire Use Plan. Under Alternative F, all fires in conditional suppression areas would be allowed to burn.



Antelope running free on the high desert near Brothers.

Table 16. Areas Limited or Closed to Off-Road Vehicle Use by Alternative,[1] Brothers/LaPine Planning Area

Area Name	Alt. A Commodity Production		Alt. B Commodities w/Natural Values		Alt. C Existing Management		Alt. D Preferred Alternative		Alt. E Natural Values w/Commodities		Alt. F Natural Values	
	Limited Public Acres	Closed Public Acres	Limited Public Acres	Closed Public Acres	Limited Public Acres	Closed Public Acres	Limited Public Acres	Closed Public Acres	Limited Public Acres	Closed Public Acres	Limited Public Acres	Closed Public Acres
Badlands Wilderness Study Area	0	0	0	5	32,216	5	32,216	5	32,216	5	32,216	5
Barlow Cave	2,340	0	14,142	0	0	0	14,142	0	14,142	0	14,142	0
Barnes Butte	0	0	0	0	0	0	0	160	0	160	0	160
Benjamin	0	0	0	0	0	0	0	640	0	640	0	640
Cline Butte	0	0	0	0	0	0	23,000	0	30,519	0	30,519	0
Cline Falls	0	5	160	0	0	0	0	160	0	160	0	160
Cougar Well Wilderness Study Area	0	0	0	0	18,435	0	18,435	0	18,435	0	18,435	0
Forest Creeks	0	0	0[2]	0	0	0	0	405[2]	0	405	0	405
Fox Butte	2,340	0	11,003	0	11,003	0	11,003	0	11,003	0	11,003	0
Gerry Mountain Wilderness Study Area	0	0	0	0	20,700	0	20,700	0	20,700	0	32,990[2]	0
Glass Buttes	0	0	0	0	0	0	17,460	0	19,000	0	19,000	0
Hampton Butte Wilderness Study Area	0	0	0	0	10,600	0	10,600	0	10,600	0	22,890[2]	0
Horse Ridge	0	600	0	600	0	600	0	600	0	600	0	600
Logan Butte	0	0	0	0	0	0	0	802	0	802	0	802
Lower Crooked River	0	490	0	4,000	600	4,000	600	4,000	600	4,000	600	4,000
Millican Valley ORV Area	0	5	0	100	60,000	5	65,000	5	53,000	5	53,000	5
North Fork Wilderness Study Area	320	0	7,085	2	10,983	2	10,633	2	10,983[2]	2	10,983[2]	2
Peck's Milkvetch/Tumalo Winter Range	2,000	160	3,902	0	3,902	0	3,902	0	2,522	1,380	0	3,902
Powell Butte	0	0	0	0	0	0	520		520	0	0	520
Prineville Reservoir/Bear Creek	0	0	2,130	50	8,000	0	12,109	320	26,000	320	30,100	320
Sand Hollow Wilderness Study Area	0	0	0	0	8,791	0	8,791	0	8,791	0	8,791	0
Smith Rocks	0	0	1,477	0	0	0	1,477	0	1,477	0	1,477	0
South Fork Wilderness Study Area	0	0	0	3	19,628	3	16,488	3,143	16,488	3,143	16,488	3,143
Wagon Road	0	160	0	160	0	0	0	160	0	160	0	160
Winter Roost	0	320	0	0	0	0	0	320	0	320	0	320
TOTAL	7,000	1,740	39,899	5,240	204,858	4,615	267,076	10,722	276,996	12,102	302,634	15,144

1/ Totals include 121,363 acres designated as WSAs. Figure not included in previous planning documents

2/ Includes public lands outside of wilderness study area boundary.

Table 17. Areas of Critical Environmental Concern, Brothers/LaPine Planning Area

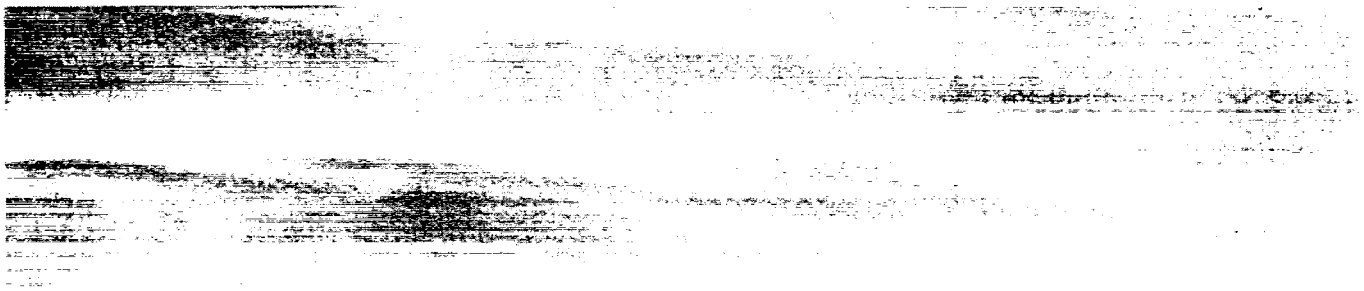
Area Name	Alt. A Commodity Production	Alt. B Commodites w/Natural Values	Alt. C No Action	Alt. D Preferred Alternative	Alt. E Natural Values w/ Commodities	Alt. F Natural Values
Badlands	0	16,860	0	16,860	16,860	16,860
Benjamin (RNA) 1/	0	0	0	640	640	640
Forest Creeks (RNA) 1/	0	0	0	405	405	405
Horse Ridge (RNA) 2/	600	600	600	600	600	600
Logan Butte	0	802	0	802	802	802
Lower Crooked River	0	2,830	0	2,830	2,830	2,830
North Fork Crooked River	320	7,142	0	6,737	6,737	10,350
Peck's Milkvetch	160	3,902	0	3,902	3,902	3,902
Powell Butte (RNA) 1/	0	0	0	520	520	520
South Fork Crooked River	0	2,940	0	3,140	3,140	3,140
Wagon Road	160	160	0	160	160	160
Winter Roost	320	320	0	320	320	320
TOTAL	1,560	35,556	600	36,916	36,916	42,329

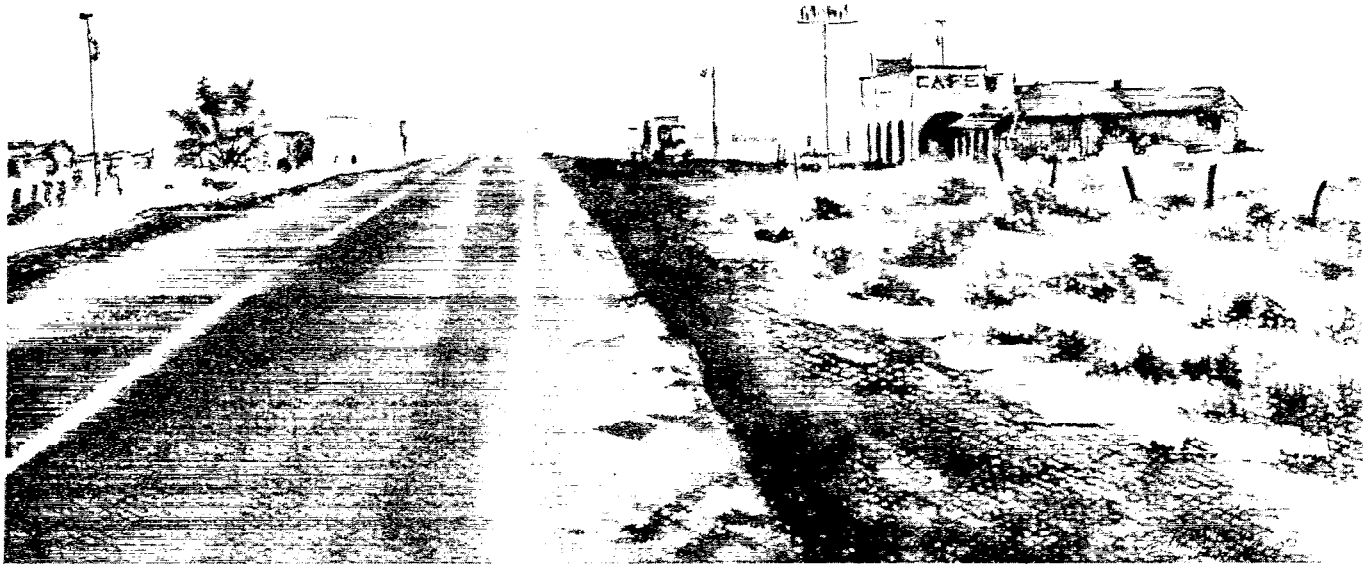
1/Proposed as RNA
2/Existing RNA/NNL

Table 18. Comparative Leasing Options

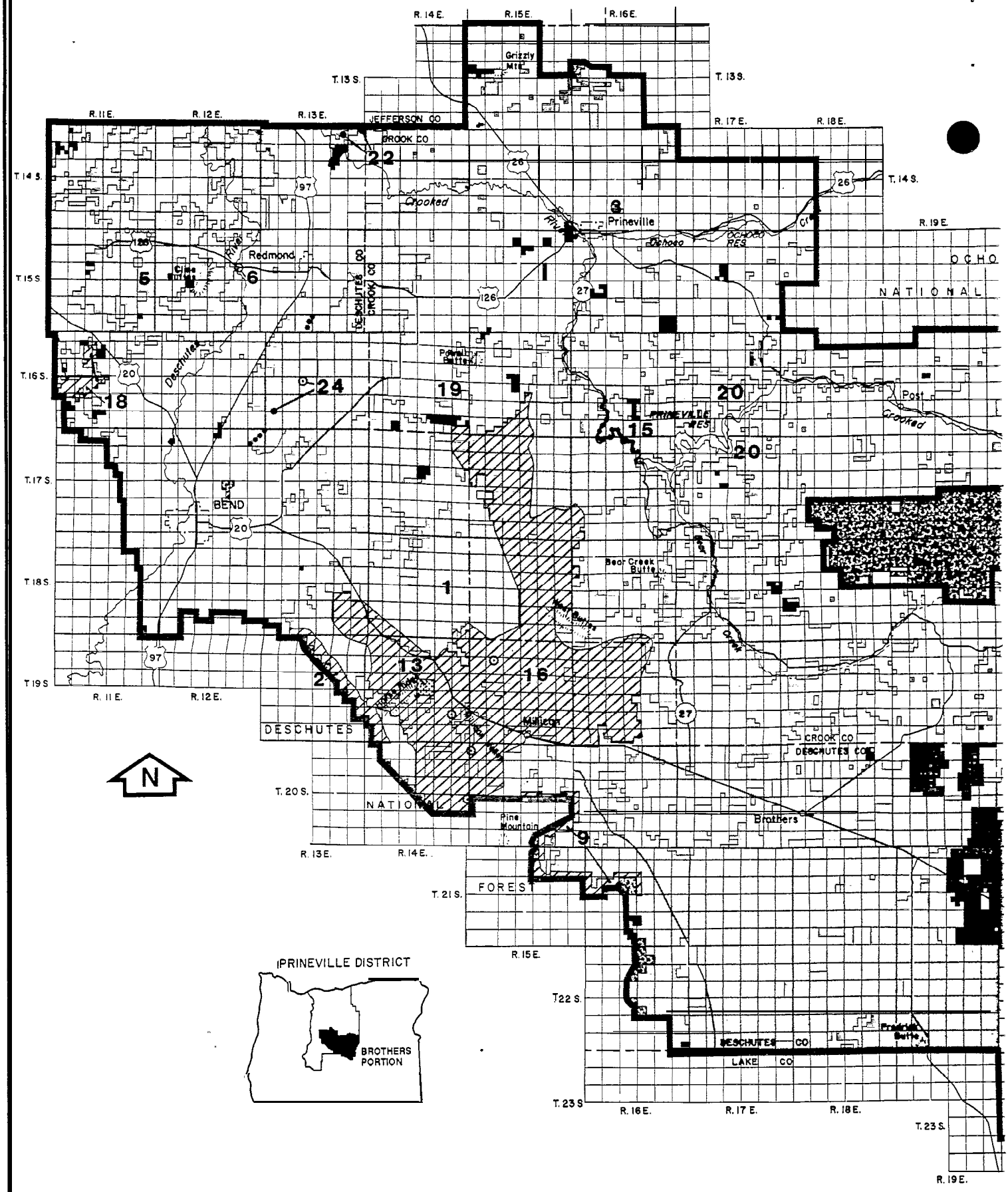
	Alt. A (Commodity production)		Alt. B (Commodities w/ Natural Values).		Alt. C (Existing Management)		Alt. D (Preferred Alternative)		Alt. E (Natural Values w/Commodities)		Alt. F (Natural	Valu
	Acres (000)	%Public Mineral Acreage	Acres (000)	%Public Mineral Acreage	Acres (000)	%Public Mineral Acreage	Acres (000)	%Public Mineral Acreage	Acres (000)	%Public Mineral Acreage	Acres (000)	%Pu Mine Acre
Public Land Open to Development withStandard Stipulations	1,115	90	1,115	90	751	61	751	61	751	61	708	57
Open to Development: with Restrictive Stipulations	0	0	0	0	364	29	364	29	364	29	364	29
Closed to Leasing	.6	0	.6	0	.6	0	.6	0	.6	0	43	4
Reserved Federal Mineral Estate Open to Leasing with Standard Stipulations	131	10	137	10	131	10	131	10	131	10	131	Ol
TOTAL	1,246	100	1,246	100	1,246	100	1,246	100	1,246	100	1,246	10

(Restrictions or changes in lease stipulations proposed under any of the alternatives would apply only to areas not presently leased or ar presently leased where leases are renewed.)





Present Day Brothers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R. 16 E.
T. 13 S.
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Grizzly Mtn.
JEFFERSON CO
R. 11 E.
R. 12 E.
R. 13 E.
R. 17 E.
R. 18 E.
CROOK CO
T. 14 S.
T. 14 S.
Crooked
Prineville
R. 19 E.
OCHO
NATIONAL
Ochoco Res.
Redmond
Cline Falls
Deschutes
DESCHUTES CROOK CO
T. 15 S.
Powell Butte
T. 16 S.
Post
Crooked
PRINEVILLE RES.
BEND
T. 17 S.
Bear Creek Butte
T. 18 S.
Millican
DESCHUTES
CROOK CO
DESCHUTES CO
T. 19 S.
R. 11 E.
R. 12 E.
N
T. 20 S.
NATIONAL
Pine Mountain
Brothers
R. 13 E.
R. 14 E.
T. 21 S.
FOREST
R. 15 E.
PRINEVILLE DISTRICT
BROTHERS PORTION
T. 22 S.
DESCHUTES CO
LAKE CO
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R. 16 E.
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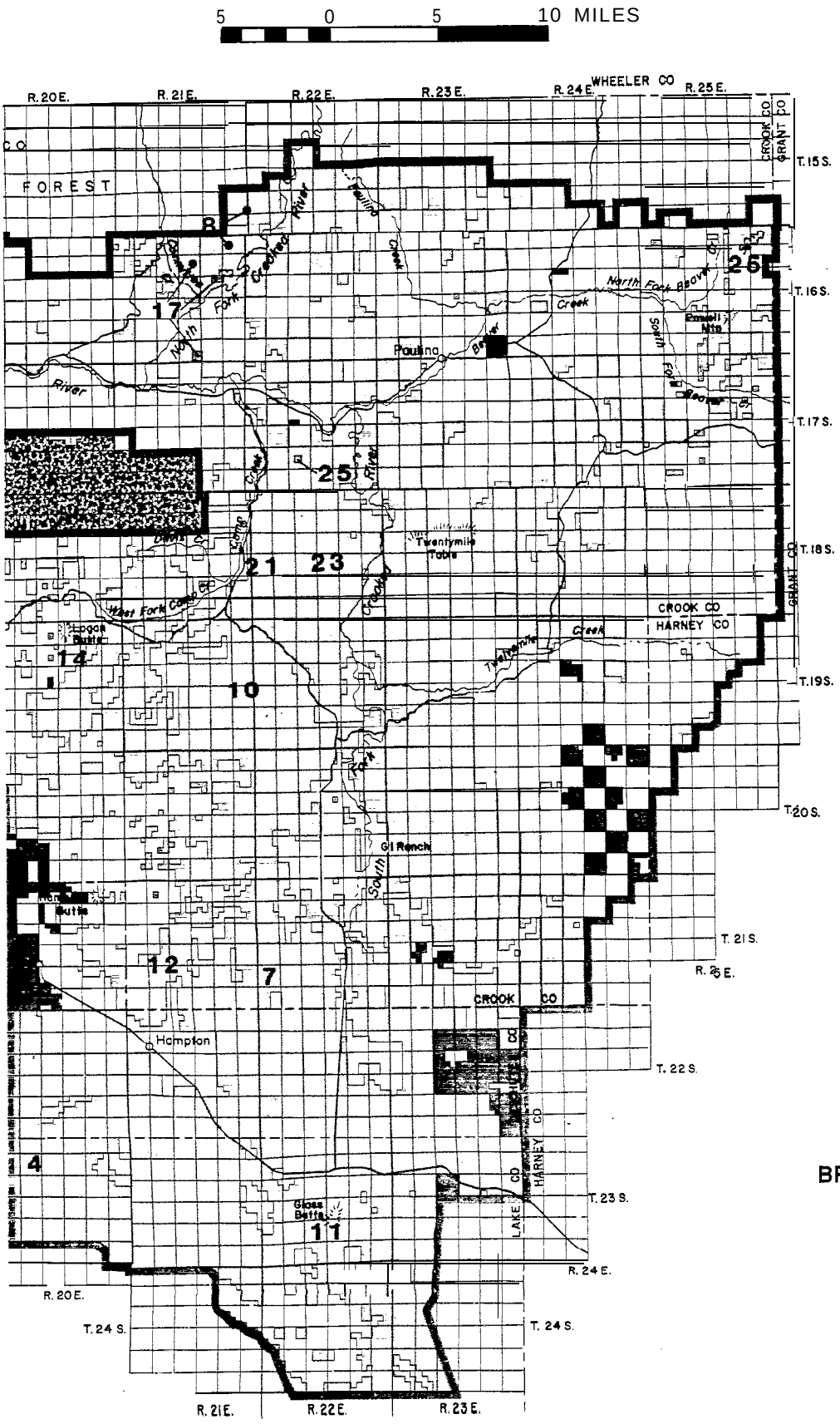
T. 23 S.
R. 19 E.



Map Number	Area Name
1	Badlands Wilderness Study Area
2	Barlow Cave
3	Barnes Butte
4	Benjamin
5	Cline Butte
6	Cline Falls
7	Cougar Well Wilderness Study Area
8	Forest Creeks
9	Fox Butte
10	Gerry Mountain Wilderness Study Area
11	Glass Butte
12	Hampton Butte Wilderness Study Area
13	Horse Ridge
14	Logan Butte
15	Lower Crooked Rivet
16	Millican Valley ORV Area
17	North Fork Wilderness Study Area
18	Peck's Milkvetch/Tumalo Winter Range
19	Powell Butte
20	Ptineville Reservoir
21	Sand Hollow Wilderness Study Area
22	Smith Rocks
23	South Fork Wilderness Study Area
24	Wagon Road
25	Winter Roost

Off Road Vehicle Use Is Limited to Existing, or Designated Roads and Trails, or Season of Use

Atea or Road Is Closed To Off Road Vehicle Use

US DEPARTMENT OF THE INTERIOR
Bureau of Land Management

PRINEVILLE DISTRICT
October 1987

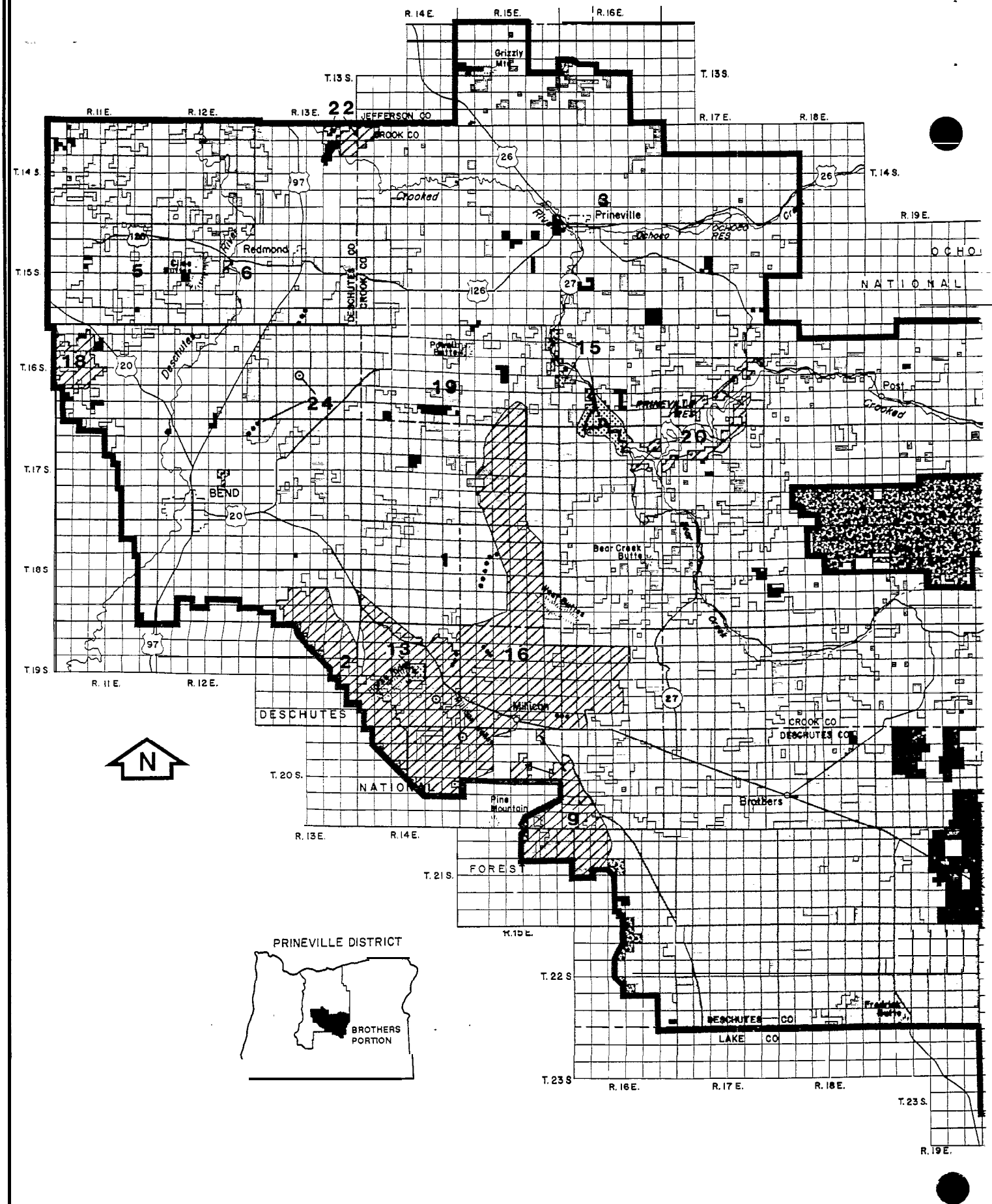
BROTHERS/LA PINE PLANNING AREA

MAP 8

Off Road Vehicle Area Designation

(Alternative A)

Brothers Portion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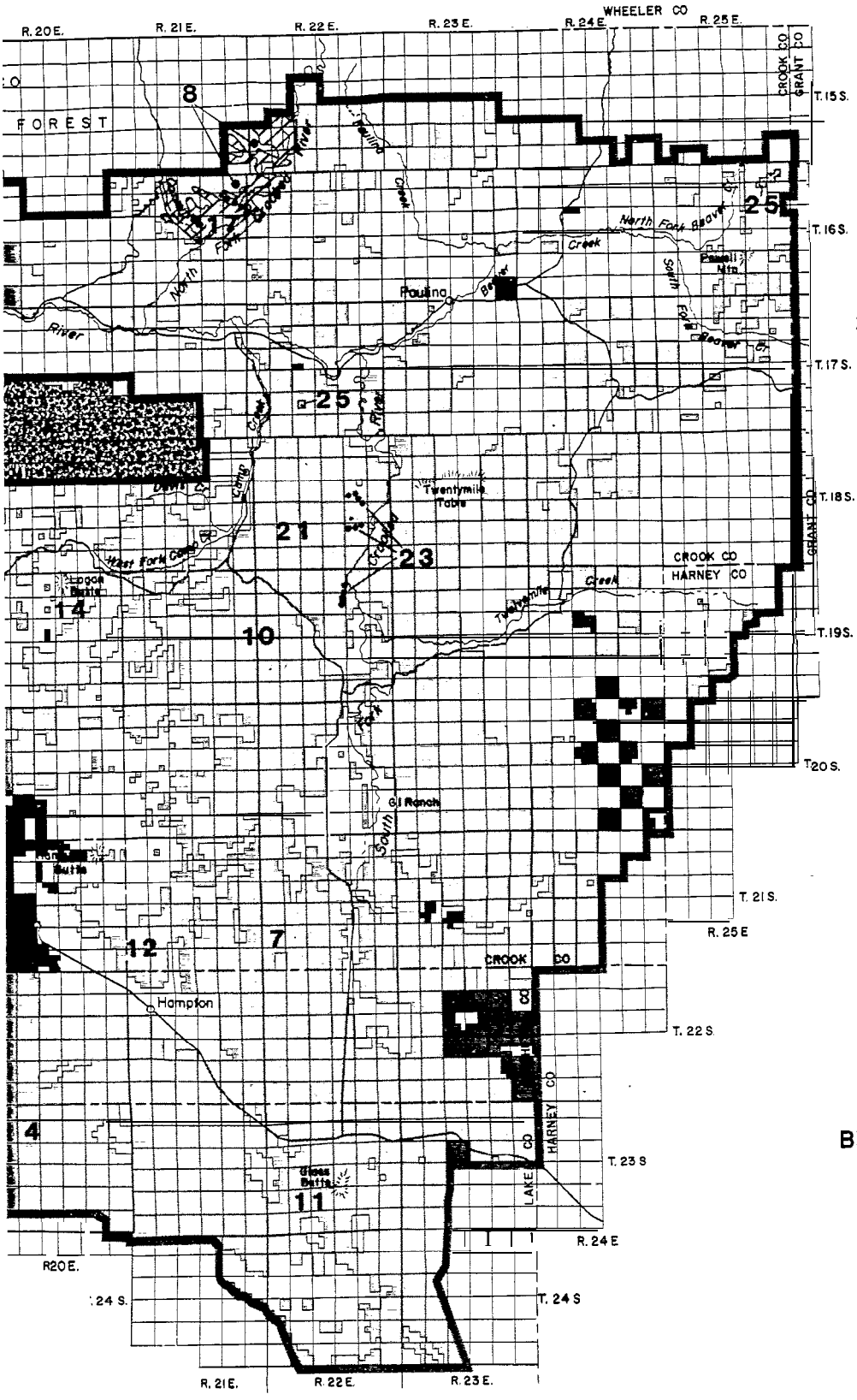
R. 15 E.
R. 16 E.
T. 13 S.
T. 13 S.
R. 11 E.
R. 12 E.
R. 13 E.
R. 17 E.
R. 18 E.
JEFFERSON CO
CROOK CO
Grizzly Mtn.
Crooked
Prineville
Ochoco Res
T. 14 S.
T. 14 S.
R. 19 E.
Redmond
Cline Buttes
Deschutes River
DESCHUTES CO
CROOK CO
NATIONAL
T. 15 S.
T. 16 S.
Powell Buttes
Post
Crooked
T. 17 S.
T. BEND
Bear Creek Butte
T. 18 S.
T. 19 S.
R. 11 E.
R. 12 E.
DESCHUTES
Millican
CROOK CO
DESCHUTES CO
T. 20 S.
NATIONAL
Pine Mountain
Brothers
R. 13 E.
R. 14 E.
T. 21 S.
FOREST
R. 15 E.
T. 22 S
DESCHUTES CO
LAKE CO
Fredrick Butte
T. 23 S
R. 16 E.
R. 17 E.
R. 18 E.
T. 23 S.
R. 19 E.
N
PRINEVILLE DISTRICT
BROTHERS PORTION



Map Number	Area Name
1	Badlands Wilderness Study Area
2	Barlow Cave
3	Barnes Butte
4	Benjamin
5	Cline Butte
6	Cline Falls
7	Cougar Well Wilderness Study Area
8	Forest Creeks
9	Fox Butte
10	Gerry Mountain Wilderness Study Area
11	Glass Butte
12	Hampton Butte Wilderness Study Area
13	Horse Ridge
14	Logan Butte
15	Lower Crooked River
16	Millican Valley ORV Area
17	North Fork Wilderness Study Area
18	Peck's Milkvetch/Tumalo Winter Range
19	Powell Butte
20	Prineville Reservoir
21	Sand Hollow Wilderness Study Area
22	Smith Rocks
23	South Fork Wilderness Study Area
24	Wagon Road
25	Winter Roost

Off Road Vehicle Use Is Limited to Existing, or Designated Roads and Trails, or Season of Use

Area or Road Is Closed To Off Road Vehicle Use

US DEPARTMENT OF THE INTERIOR
Bureau of Land Management

PRINEVILLE DISTRICT
October 1987

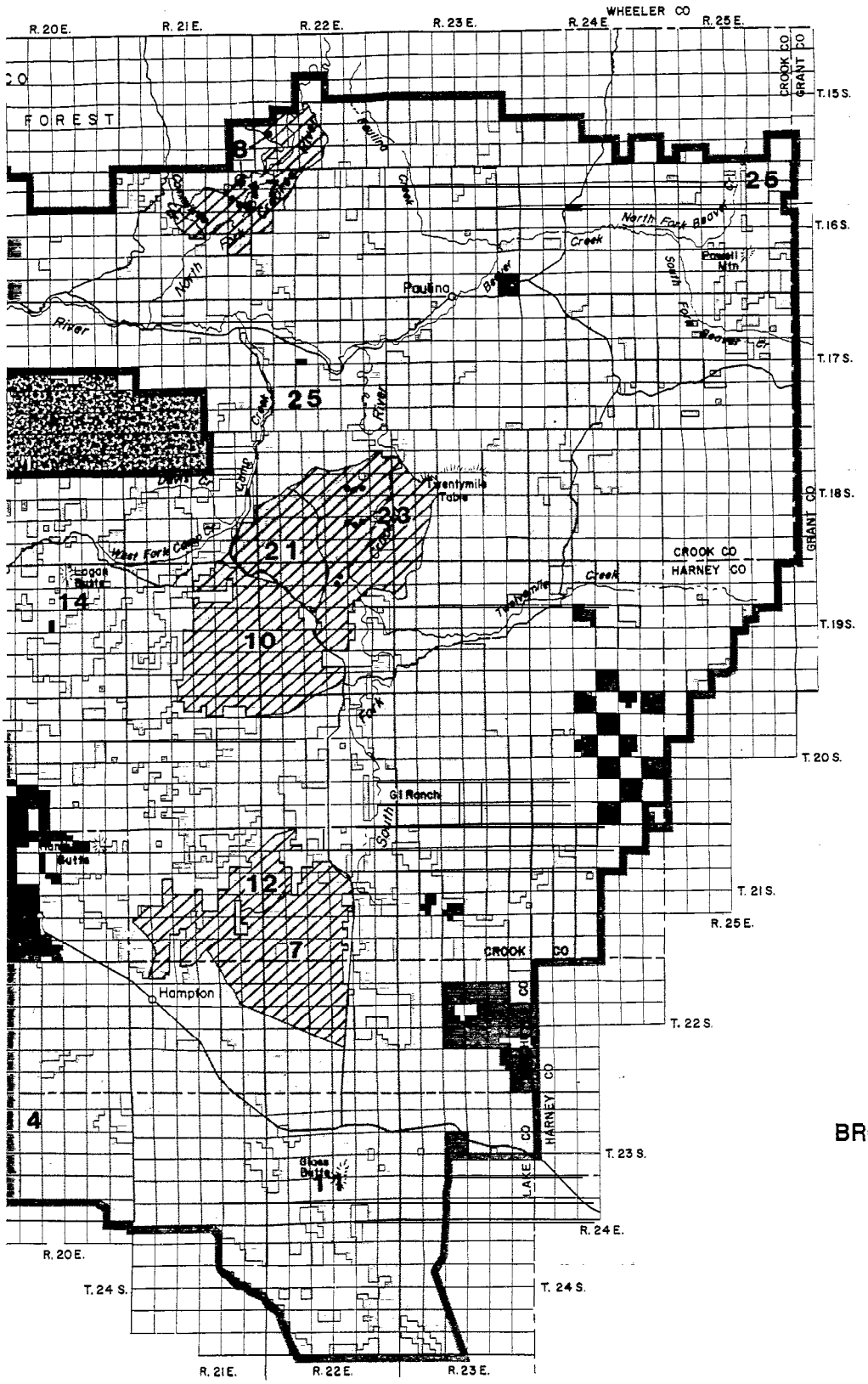
BROTHERS/LA PINE PLANNING AREA

MAP 9

Off Road Vehicle Area Designation (Alternative B)

Brothers Portion

R. 14 E.
R. 15E.
R. 16E.
T. 13 S.
Grizzly Mtn.
R. 11E.
R. 12 E.
R. 13 E.
JEFFERSON CO
BROOK CO
R. 17 E.
R. 18E.
T. 14 S.
Crooked
Prineville
Ochoco
OCHOCO RES
R. 19E.
Redmond
Cline Buttes
Deschutes
DESCHUTES CO
CROOK CO
NATIONAL
T. 15 S.
Powell Butte
T. 16S.
Post
PRINEVILLE RES
T. 17 S.
T. BEND
Bear Creek Butte
T. 18 S.
Millican
T. 19S.
DESCHUTES
CROOK CO
DESCHUTES CO
N
T. 20 S.
NATIONAL
Pine Mountain
Brothers
R. 13E.
R. 14 E.
T. 21 S.
FORES
R. 15E.
T. 22 S
DESCHUTES CO
LAKE CO
T. 23 S
R. 16E.
R. 17 E.
R. 18E.
T. 23 S.
R. 19E.
PRINEVILLE DISTRICT
BROTHERS PORTION



Map Number	Area Name
1	Badlands Wilderness Study Area
2	Barlow Cave
3	Barnes Butte
4	Benjamin
5 *	Cline Butte
6	Cline Falls
7	Cougar Well Wilderness Study Area
8	Forest Creeks
9	Fox Butte
10	Gerry Mountain Wilderness Study Area
11	Glass Butte
12	Hampton Butte Wilderness Study Area
13	Horse Ridge
14	Logan Butte
15	Lower Crooked River
16 *	Millican Valley ORV Area
17	North Fork Wilderness Study Area
18	Peck's Milkvetch/Tumalo Winter Range
19	Powell Butte
20 *	Prineville Reservoir
21	Sand Hollow Wilderness Study Area
22	Smith Rocks
23	South Fork Wilderness Study Area
24	Wagon Road
25	Winter Roost

* Existing Concentrated ORV Use Area

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Undesignated but Sensitive Areas

US DEPARTMENT OF THE INTERIOR
Bureau of Land Management

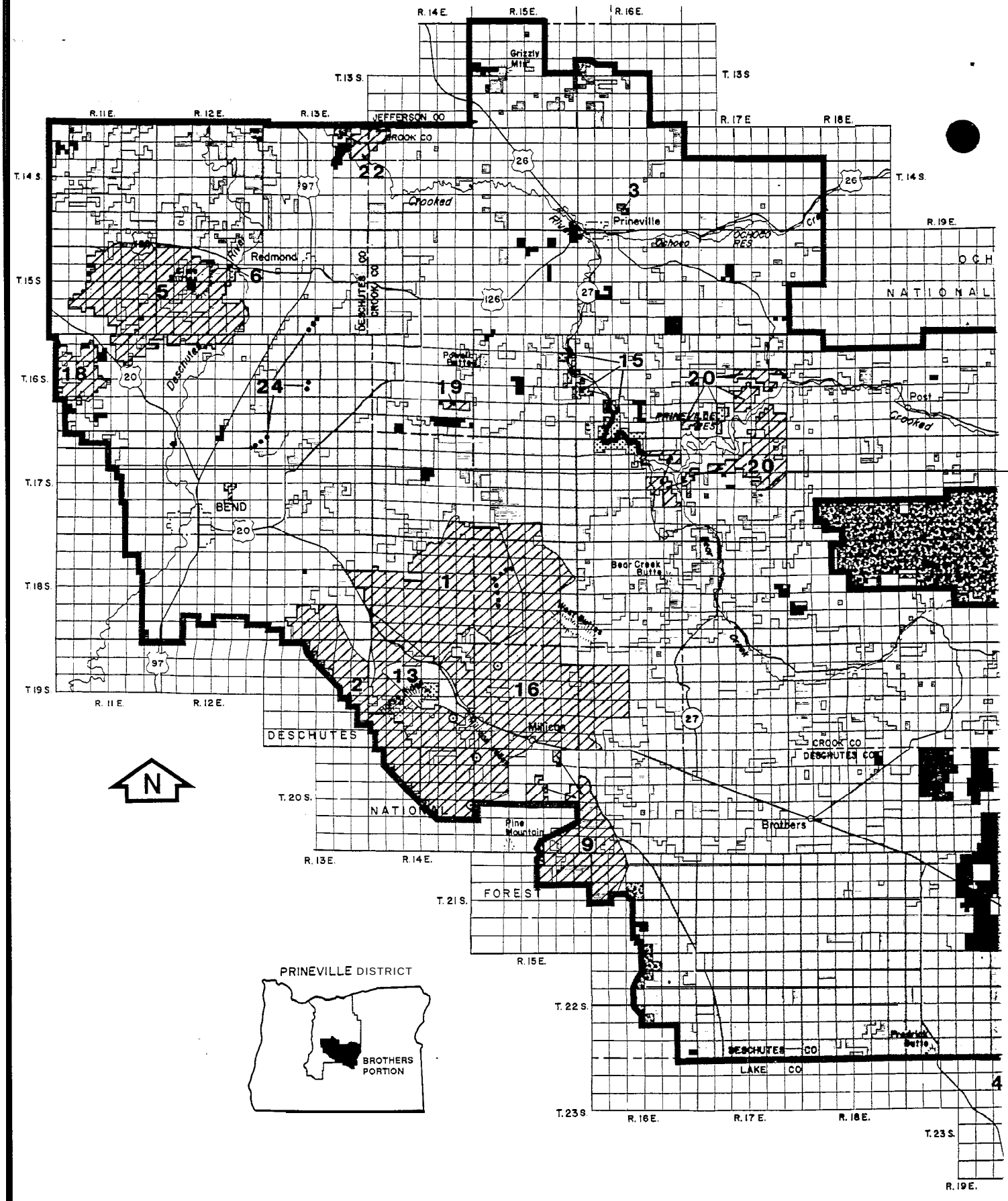
PRINEVILLE DISTRICT
October 1987

BROTHERS/LA PINE PLANNING AREA

MAP 10

Off Road Vehicle Area Designation (Alternative C)

Brothers Portion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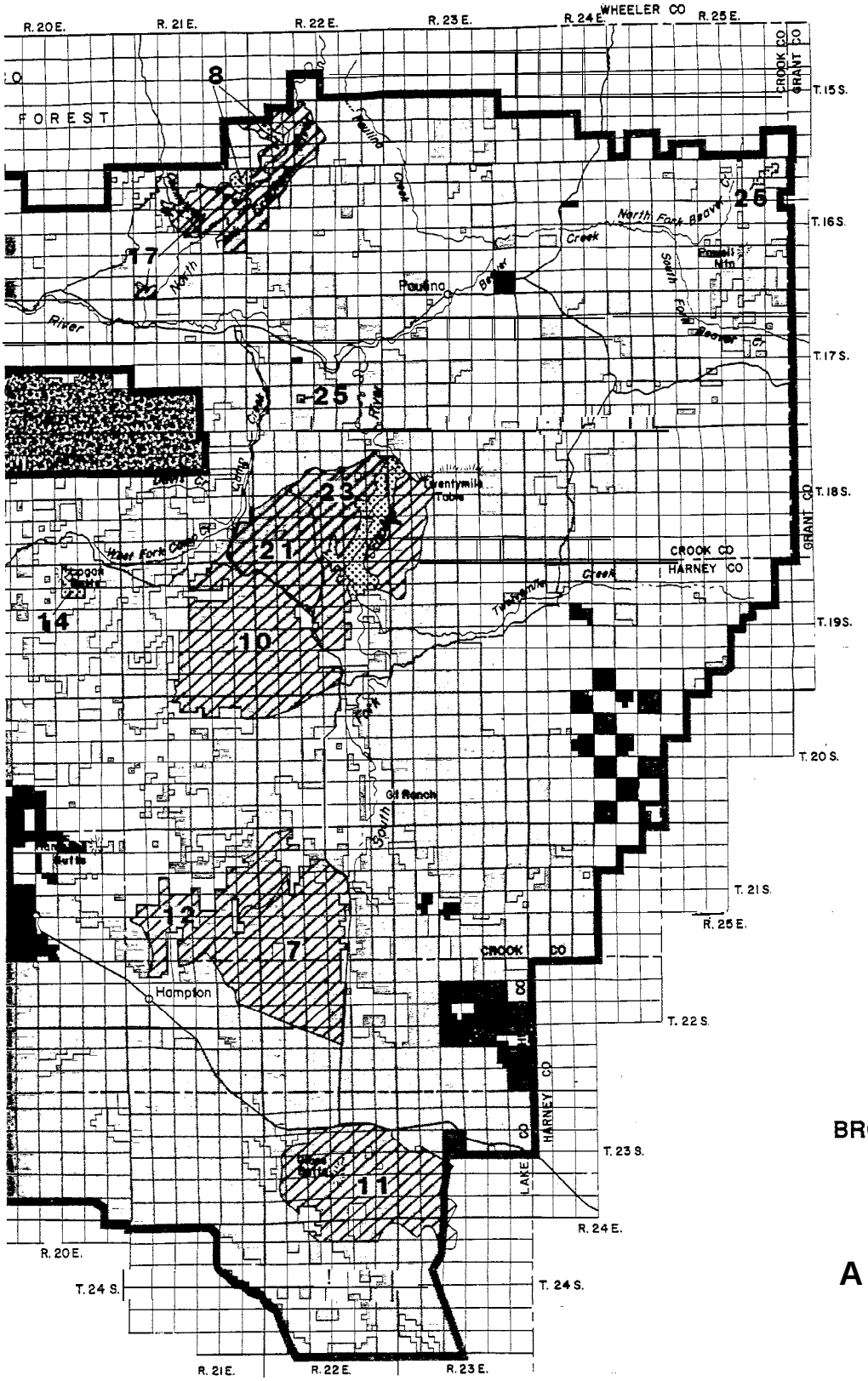
R. 15 E.
R. 16 E.
T. 13 S.
Grizzly Mtn.
R. 11 E.
R. 12 E.
R. 13 E.
JEFFERSON CO
CROOK CO
R. 17 E
R. 18 E.
T. 14 S.
Crooked
Prineville
Ochoco
Ochoco Res
R. 19 E.
Redmond
Deschutes River
DESCHUTES CROOK CO
NATIONAL
T. 15 S.
Powell Butte
T. 16 S.
Deschutes
Post
Crooked
T. 17 S.
BEND
Bear Creek Butte
T. 18 S.
Millican
DESCHUTES
CROOK CO
DESCHUTES CO
T. 19 S.
T. 20 S.
NATIONAL
Pine Mountain
Brothers
R. 13 E.
R. 14 E.
T. 21 S.
FOREST
R. 15 E.
PRINEVILLE DISTRICT
BROTHERS PORTION
T. 22 S.
DESCHUTES CO
LAKE CO
Paulina Butte
T. 23 S.
R. 16 E.
R. 17 E.
R. 18 E.
R. 19 E.
N



Map Number	Area Name
1	Badlands Wilderness Study Area
2	Barlow Cave
3	Barnes Butte
4	Benjamin
5	Cline Butte
6	Cline Falls
7	Cougar Well Wilderness Study Area
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11	Glass Butte
12	Hampton Butte Wilderness Study Area
13	Horse Ridge
14	Logan Butte
15	Lower Crooked River
16	Millican Valley ORV Area
17	North Fork Wilderness Study Area
18	Peck's Milkvetch/Tumalo Winter Range
19	Powell Butte
20	Prineville Reservoir
21	Sand Hollow Wilderness Study Area
22	Smith Rocks
23	South Fork Wilderness Study Area
24	Wagon Road
25	Winter Roost

Off Road Vehicle Use Is Limited to Existing, or Designated Roads and Trails, or Season of Use

Area or Road Is Closed To Off Road Vehicle Use

US DEPARTMENT OF THE INTERIOR
Bureau of Land Management

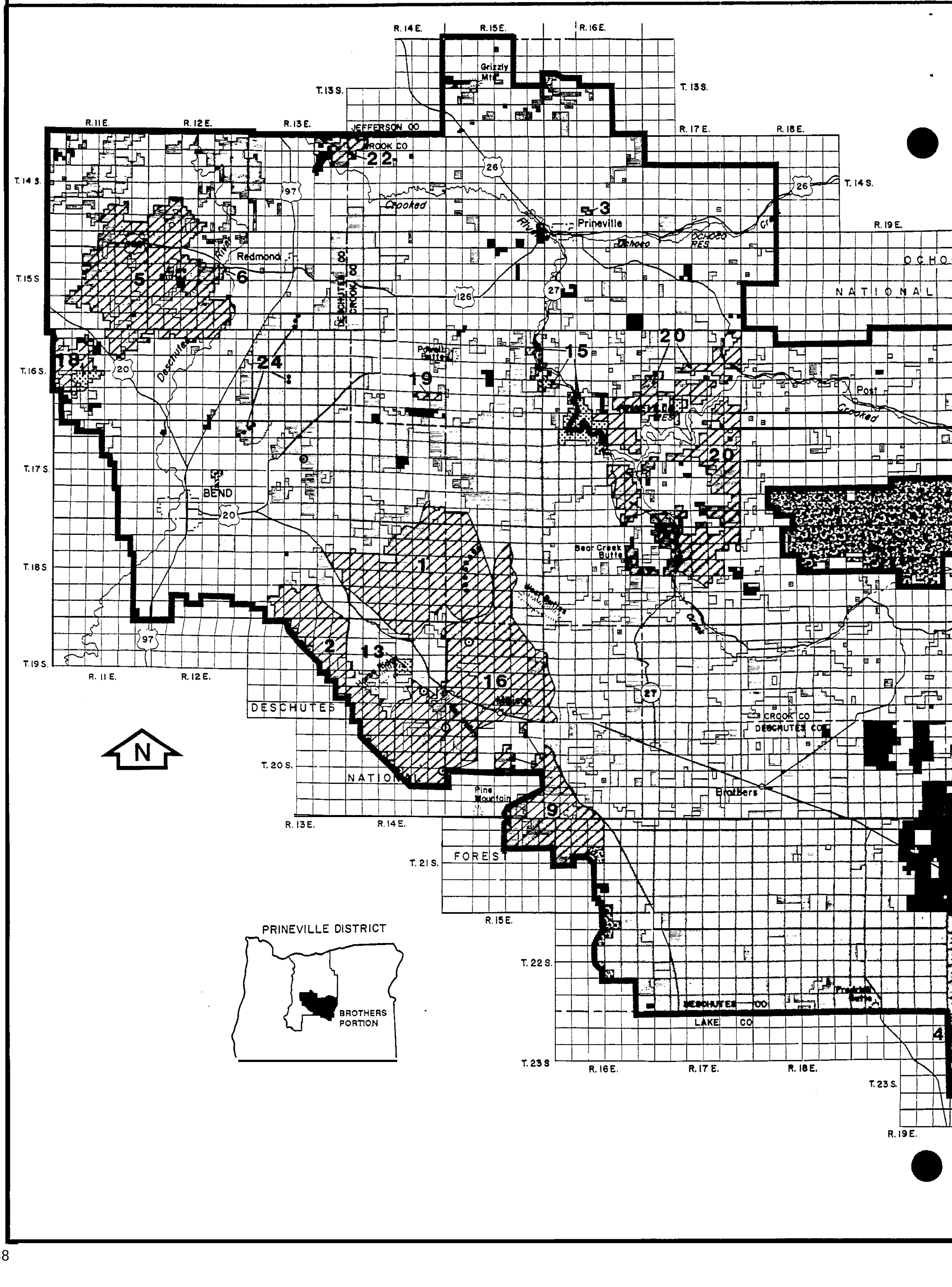
PRINEVILLE DISTRICT
October 1987

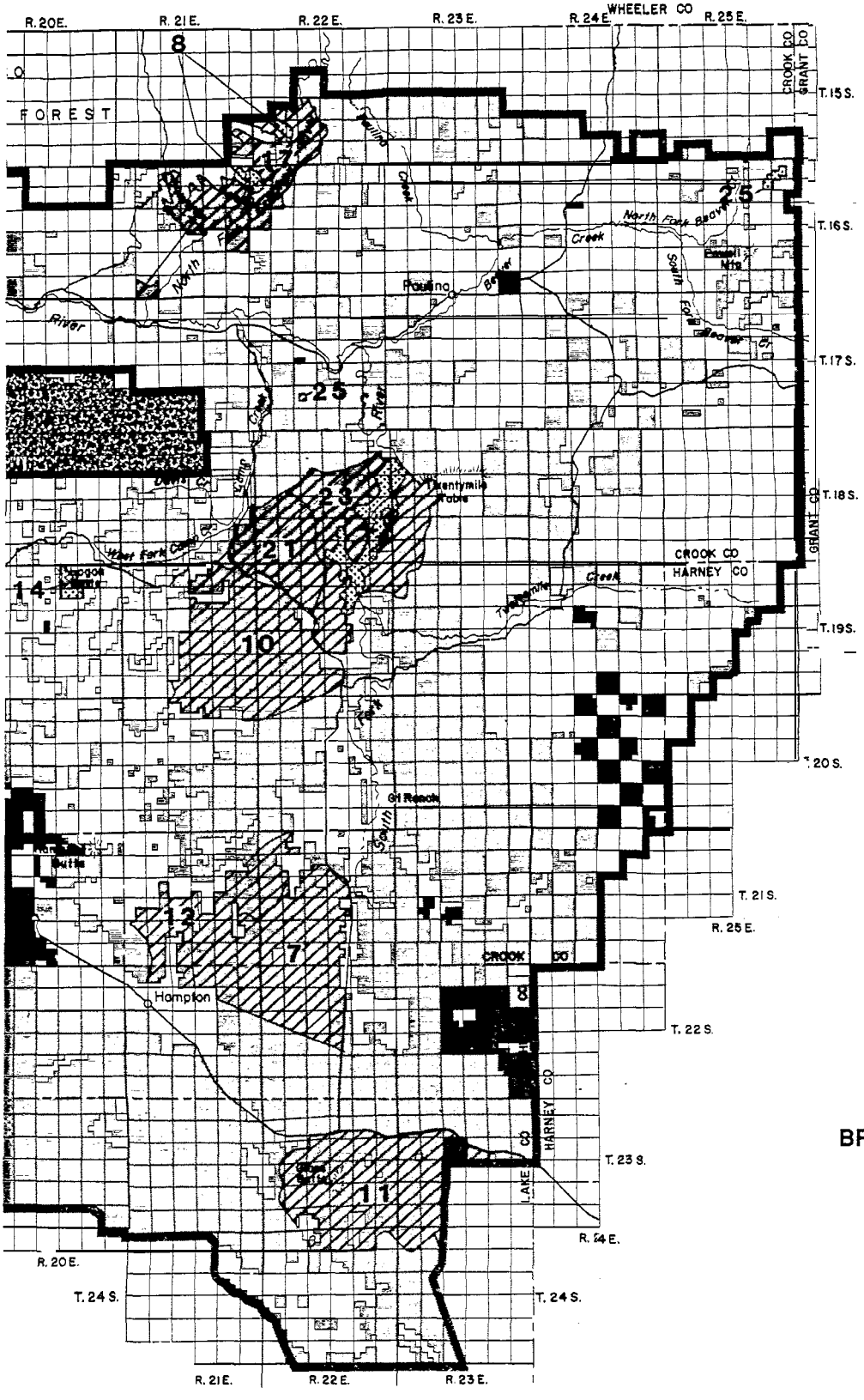
BROTHERS/LA PINE PLANNING AREA

MAP 11

Off Road Vehicle Area Designation (Alternative D)

Brothers Portion


R.14E.
R.15E.
R.16E.
Grizzly Mtn
T.13S.
R.11E.
R.12E.
R.13E.
JEFFERSON CO
CROOK CO
22
R.17E.
R.18E.
T.14S.
26
97
Crooked
3
Prineville
River
Ochoco
OCHOCO RES
R.19E.
Redmond
River
OCHOCO
NATIONAL
T.15S
5
6
DESCHUTES CO
CROOK CO
126
27
20
Powell Buttes
15
18
24
T.16S.
20
Deschutes
19
Post
Crooked
RES
20
T.17S.
BEND
20
T.18S.
Bear Creek Butte
1
97
2
13
16
T.19S.
R.11E.
R.12E.
27
DESCHUTES
CROOK CO
DESCHUTES CO
N
T.20S.
NATIONAL
Pine Mountain
Brothers
9
R.13E.
R.14E.
T.21S.
FOREST
R.15E.
PRINEVILLE DISTRICT
BROTHERS PORTION
T.22S.
DESCHUTES CO
LAKE CO
4
T.23S
R.16E.
R.17E.
R.18E.
T.23S.
R.19E.



Map Number	Area Name
1	Badlands Wilderness Study Area
2	Barlow Cave
3	Barnes Butte
4	Benjamin
5	Cline Butte
6	Ciine Falls
7	Cougar Well Wilderness Study Area
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9	Fox Butte
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11	Glass Butte
12	Hampton Butte Wilderness Study Area
13	Horse Ridge
14	Logan Butte
15	Lower Crooked River
16	Millican Valley ORV Area
17	North Fork Wilderness Study Area
18	Peck's Milkvetch/Tumalo Winter Range
19	Powell Butte
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21	Sand Hollow Wilderness Study Area
22	Smith Rocks
23	South Fork Wilderness Study Area
24	Wagon Road
25	Winter Roost

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US DEPARTMENT OF THE INTERIOR
Bureau of Land Management

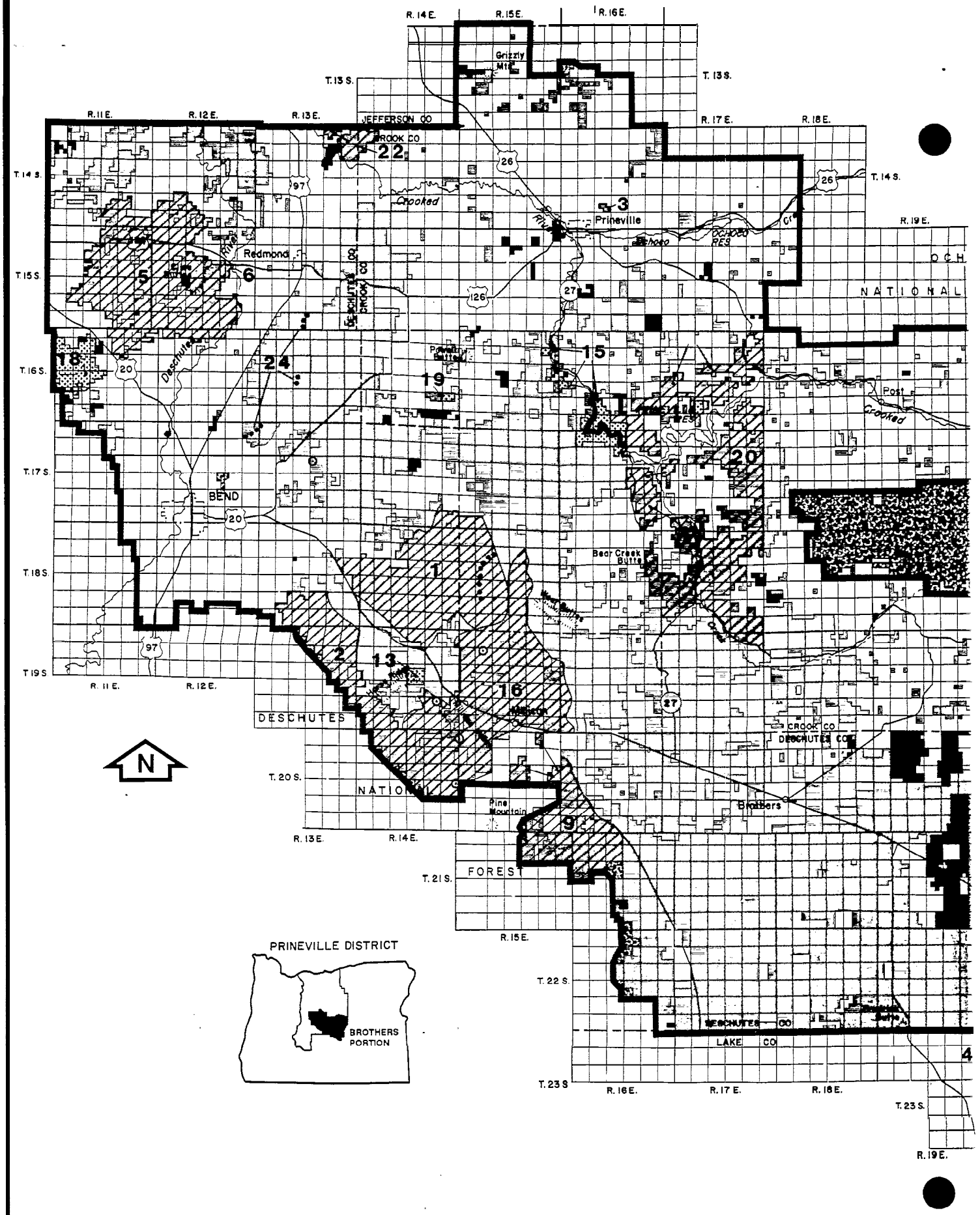
PRINEVILLE DISTRICT
October 1987

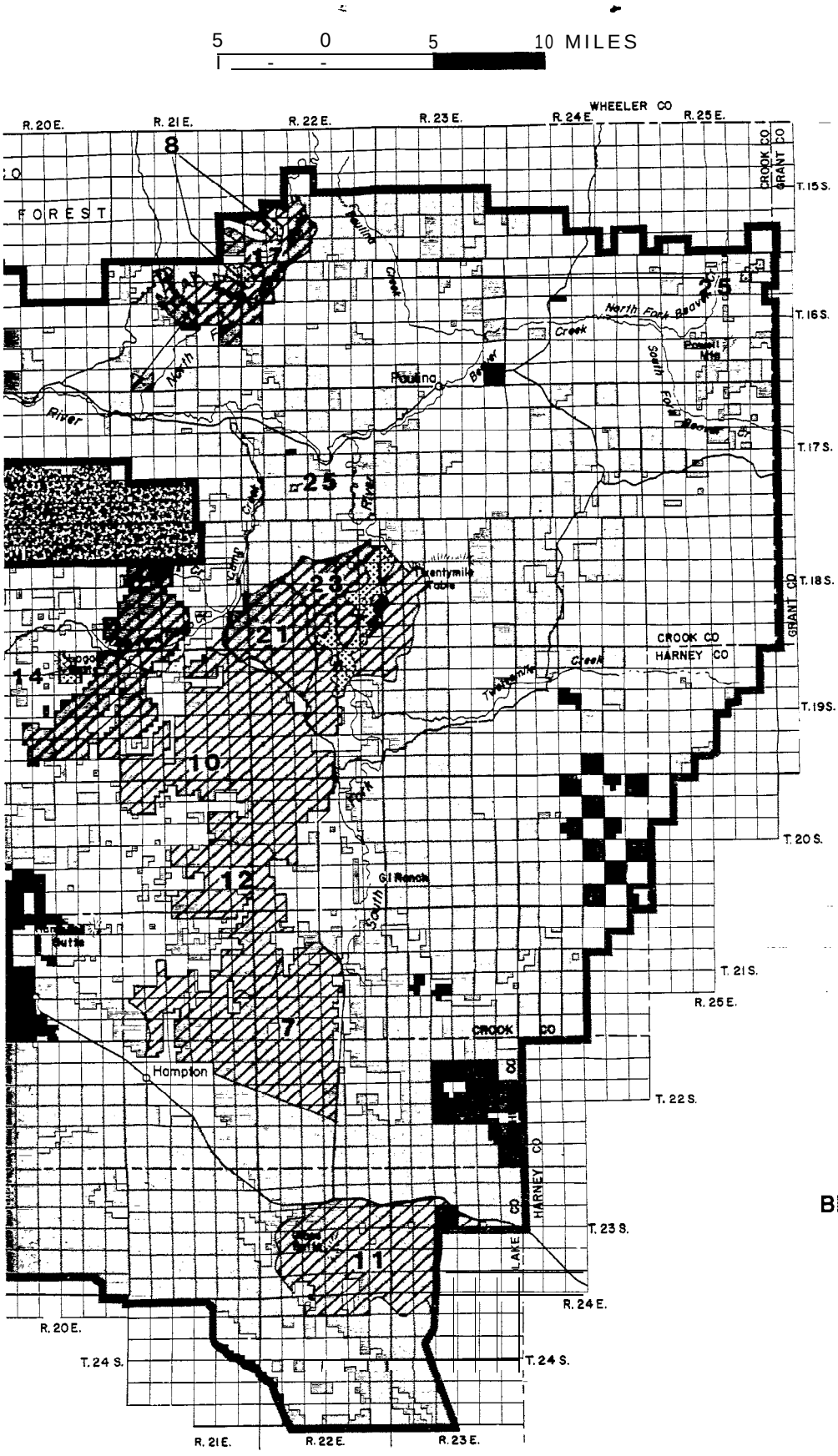
BROTHERS/LA PINE PLANNING AREA

MAP 12

Off Road Vehicle Area Designation (Alternative E)

Brothers Portion


R. 14 E.
R. 15 E.
R. 16 E.
T. 13 S.
Grizzly Mtn.
R. 11 E.
R. 12 E.
R. 13 E.
JEFFERSON CO
CROOK CO
R. 17 E.
R. 18 E.
T. 14 S.
22
26
97
Crooked
3
Prineville
R. 19 E.
Ochoco Res
Redmond
T. 15 S.
5
6
126
27
DESCHUTES CO
CROOK CO
NATIONAL
T. 16 S.
18
20
Deschutes
24
Powell Butte
19
15
Post
Crooked
T. 17 S.
BEND
20
Bear Creek Butte
T. 18 S.
1
2
13
16
Millican
DESCHUTES
CROOK CO
DESCHUTES CO
T. 20 S.
NATIONAL
Pine Mountain
Brothers
9
R. 13 E.
R. 14 E.
T. 21 S.
FORES
R. 15 E.
T. 22 S.
DESCHUTES CO
LAKE CO
4
T. 23 S.
R. 16 E.
R. 17 E.
R. 18 E.
T. 23 S.
R. 19 E.
N
PRINEVILLE DISTRICT
BROTHERS PORTION



Map Number	Area Name
	Badlands Wilderness Study Area
12	Barlow Cave
3	Barnes Butte
4	Benjamin
5	Cline Butte
6	Cline Falls
7	Cougar Well Wilderness Study Area
8	Forest Creeks
9	Fox Butte
10	Gerry Mountain Wilderness Study A
11	Glass Butte
12	Hampton Butte Wilderness Study A
13	Horse Ridge
14	Logan Butte
15	Lower Crooked River
16	Millican Valley ORV Area
17	North Fork Wilderness Study Area
18	Peck's Milkvetch/Tumalo Winter Ran
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21	Sand Hollow Wilderness Study Area
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Off Road Vehicle Use Is Limited to Existing, or Designated Road and Trails, or Season of Use

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US DEPARTMENT OF THE INTERIOR
Bureau of Land Management

PRINEVILLE DISTRICT
October 1987

BROTHERS/LA PINE PLANNING ARE

MAP 13

Off Road Vehicle Area Designation (Alternative F)

Brothers Portion

Chapter 3. Affected Environment

LaPine prior to 1935 when the store burned down

Introduction

This chapter describes the public lands as they now exist within the Brothers/LaPine Planning Area. Emphasis has been placed on resources that would be affected by alternatives analyzed in this RMP/EIS. Unless otherwise indicated, the discussion following the heading refers to the entire planning area.

Information is summarized from the Management Situation Analysis (MSA) and other resource inventories on file at the Prineville District Office. These documents are available for examination during normal working hours.

Climate

Climate for the planning area is generally semi-arid. It is characterized by long, cool, moist winters and short, warm, dry summers. Length and character of climatic summer and winter extremes are influenced by elevation, local topography and rain shadow effect of the Cascade Mountains.

The Brothers portion receives about 9 to 14 inches of precipitation annually, most during winter and spring. The frost-free period averages 50 to 90 days.

The LaPine portion receives about 20 inches of precipitation annually: most is rain or snow during fall and winter. The frost-free period averages 10 to 50 days.

Air Quality

Air quality is generally excellent in the planning area. The Oregon Department of Environmental Quality (DEQ) indicated that Bend, the only monitored city in the planning area, exceeded total suspended particulate standards twice during 1985, the last year for which data are available. Violations typically occur during winter months and are attributed to fugitive dust, woodstove emissions and agricultural and slash burning (DEQ, 1986). No other monitored pollutants that exceed Oregon or national ambient air quality standards as specified in the Clean Air Act have been reported.

Bend was added as a "Designated Area" to the Oregon Smoke Management Plan in 1987 (DOF, 1987); therefore, no record of smoke intrusions from wild and prescribed fires exist.

Visibility, based on DEQ data from Big Lake, about 50 miles northwest of Bend, had a median visual range of about 81 miles with a range of 10 to 155 miles during the summer months of 1982-1986 (DEQ, 1987). In the area monitored by the Big Lake facility, visibility is affected to some degree about 60 to 70 percent of the time by natural and anthropogenic sources. There are no visibility data available from within the planning area.

Soil

The complex and diverse soil patterns in the Brothers portion are summarized in Appendix M.

In addition, soil data is available in the General Soil Deschutes County (USDA, 1973), Prineville Soil Survey (USDA, 1966) and the unpublished order III BLM soil survey. This information contains soil series descriptions, mapping unit descriptions, interpretations and detailed soil maps which are on file at the Prineville District Office.

Soil in the LaPine portion of the planning area is currently being mapped by the Soil Conservation Service (SCS) for the "Upper Deschutes Soil Survey" to be published in 1992. The SCS General Soil Map of Deschutes County, 1973, identified four major soil units for public lands in LaPine. They are summarized in Appendix M.

Water

The water resources of the Brothers/LaPine Planning Area lie within two major subbasins or watersheds of the Deschutes River Basin: the Upper and Middle Deschutes and Upper and Lower Crooked Rivers. An area south of Brothers and Hampton consisting of small, scattered basins and intermittent lakebeds is in the Goose and Summer Lakes Basin (Oregon State Water Resources Board, 1961).

Crooked River upstream from Prineville.

Water Quantity

Perennial streams in the predominantly rangeland watersheds have headwaters in the higher-elevation. forested areas of the Deschutes and Ochoco National Forests. This results in surface runoff coming in two phases: lower elevations contribute primarily during November through February and higher elevations contribute during spring snow melt. Because of lower elevations and climatic conditions, major flood events usually occur when winter rains fall on existing snow pack and frozen soils (Silvernale, Simonson, and Howard, 1976). There are localized flood events from thunderstorms usually during the summer months of June, July and August. These are generally near the Maury Mountains and the Ochoco National Forest.

In the LaPine portion, Little Deschutes River, Cresent Creek, and Deschutes River are streams whose origins are in the Deschutes National Forest. Soils in the LaPine portion do not contribute directly to surface runoff and stream flow due to the well-drained pumice soils and the porous underlying basalt. Pumice soils generally limit direct surface runoff, but greatly influence a shallow water table and aquatic recharge into these major streams in LaPine.

Water Quality

Generally, water quality in the planning area meets standards established by the Department of Environmental Quality (DEQ, 1980) and is sufficient for consumptive use by terrestrial wildlife and livestock. Untreated surface water is not considered suitable for human consumption due to high potential of pathogenic organisms.

There are no municipal watersheds (with domestic water systems) in the planning area.

Streams in the LaPine portion are spring-fed or reservoir-controlled and water quality is good to excellent. Problems with contamination of shallow aquifers is the major water quality concern.

Specific water quality problems in the Brothers portion are high water temperatures, sediment deposition and lack of sufficient late summer flows. A contributing factor is lack of sufficient riparian vegetation to shade the stream and stabilize the stream channels Appendix L lists water quality for streams-in the Brothers portion: no water quality data exists for LaPine portion.

Flows entering Prineville Reservoir from Upper Crooked River, Camp Creek, Bear Creek. Eagle Creek, Lost Creek, Klootchman Creek, Cow Creek, and Newsome Creek contain a high amount of suspended clays (Silvernale, Simonson, and Harward, 1976). These sediments come from both private and public lands and contribute to lower water quality for downstream users. Contributing factors are lack of sufficient upland protective cover on highly erosive soils and poor stream channel stability.

The Oregon Washington Riparian Enhancement Plan available at the District Office details proposed projects, management and further monitoring required to reduce sedimentation in the planning area.

Vegetation

LaPine Portion

Upland Vegetation

Table 19 summarizes the vegetative types for the LaPine portion of the planning area. Table 7 in Chapter 2 summarizes vegetation types for the Brothers portion of the planning area. Even though variations in the LaPine portion's dominant vegetative type of lodgepole-bitterbrush-fescue exist, they are not considered significant in terms of overall vegetative diversity. Essentially all the LaPine portion is forested.

Table 19. Vegetation Types, LaPine Portion, Brothers/LaPine Planning Area

Vegetative Type	Public Acres
Lodgepole-bitterbrush fescue	43,729
Ponderosa pine-bitterbrush-manzanita-fescue	907
Wet meadow	125
Riparian	10
Other[1]	1,110
TOTAL	45,881

[1] Other: quarries, rock pits, pumice desert, grass/pasture.

Riparian Vegetation

Riparian areas comprise less than one percent of the public land in the LaPine portion of the planning area, yet are often the most heavily utilized. Riparian areas contribute to biological diversity, streambank and channel stability and water quality. Recreation, livestock, agricultural use and wildlife all contribute to the total use of these areas.

Ecological Status

Ecological status of the public land in the LaPine portion, based on the relationship between the existing plant composition on a given site and the composition of that site in a pristine state, is shown in Table 20. Existing vegetation is listed as potential natural community (PNC), late seral, mid-seral or early seral status.

Table 20. Present Ecological Status, LaPine Portion, Brothers/LaPine Planning Area

Ecological Status	Public Acres
PNC[1/]	107
Late seral	36,425
Mid seral	4,944
Early seral	3,295
Other[2/]	1,110
TOTAL	45,881

[1/] Potential natural community.

[2/] Land where no seral status could be determined.

Special Status Plant Species

Twenty-one vascular plant species listed by the Oregon Natural Heritage Data Base are either known to occur, or are **suspected** of occurring, on public land within the planning area. Of these, seven are candidates for federal listing as endangered or threatened. All species are listed in Table 21.

yellow bells

Table 21. Special Status Plant Species, Brothers/ LaPine Planning Area

Plant Name	State[1/]	Federal[2/]
Artemisia ludoviciana ssp. estesii[3/]	1	C
Asclepias cryptoceras[3/]	w	—
Astragalus peckii[3/]	1	C
Astragalus tegetarioides	1	C
Calochortus longebarbatus var. peckii[3/]	3	C
Caulanthus pilosus	w	—
Claytonia umbellata[3/]	w	—
Cryptantha rostellata	r	—
Hymenopappus filifolius var. filifolius[3/]	r	—
Isoetes spp.	r	—
Lilaea scilloides	r	—
Lupinus cusickii[3/]	l	C
Machaerocarpus californicus	r	—
Penstemon deustus var. variabilis[3/]	r	—
Penstemon eriantherus var. argillosus[3/]	3	—
Penstemon peckii	3	C
Pilularia americana	2	—
Salix bebbiana	2	—
Silene scaposa var. scaposa[3/]	3	C
Utricularia intermedia	r	—
Utricularia minor	r	—

[1/] From Rare, Threatened and Endangered Plants and Animals of Oregon, Oregon Natural Heritage Data Base, March 1985, as amended at the ONHDB sponsored conference, October, 1986.
1–Endangered or threatened throughout range
2–Endangered or threatened in Oregon, but more common elsewhere
3–Limited in abundance throughout range but currently stable
r– Review list
w– Watch list

[2/] From Federal Register Notice of Review, September 27, 1985
C–Federal candidate category 2 (more information is needed before a decision can be made to either propose the species for listing as endangered or threatened or to drop the species from further consideration)
— No federal status

[3/] Denotes recent, documented occurrence on public land within the planning area

Forestland

Commercial Forestland

LaPine Portion

There are about 34,000 acres of forestland in the LaPine portion (Map 14). Approximately 7,000 acres have been harvested or are under contract for harvesting. Table 22 summarizes forestland in the LaPine portion.

Timber stand conditions range from mature (5 inches to 11 inches dbh) to over-mature (more than 11 inches dbh). All sites are 40 to 70 percent stocked.

In 1978 an infestation of Mountain Pine Beetle was identified in a 700-acre area near LaPine. By 1980 the infestation had spread to 7,580 acres. Nearly 80 percent of the lodgepole pine in the LaPine portion of the planning area is expected to be killed by the Mountain Pine Beetle before the infestation ends within the next five years.

An environmental assessment, published in 1981, evaluated and analyzed treatments to respond to the Mountain Pine Beetle attack. The ensuing decision called for an annual harvest of 7 to 9 million board feet from 1,000 to 1,400 acres, an increase of 4.6 million board feet from the sustained annual yield of 3.4 million board feet.

Table 22. Commercial Forestland, LaPine Portion, Brothers/LaPine Planning Area

	Public Acres
TOTAL forestland	45,881
Nonforest[1/]	1,110
Forestland available for production of forestland products [2/]	44,771
Forestland available for production of forestland products and harvested or under contract for harvesting	7,163
Forestland identified for exchange	2,679
Forestland available for intensive production of forestland products[2/]	34,929

1/Includes gravel pits, pumice desert and grassland.
2/Includes 135 acres of wet meadow and riparian.

Forestland in LaPine is currently managed to salvage dead and dying material. Due to the beetle epidemic, LaPine portion forestland is not managed as a sustained yield unit. If an accelerated harvest program continues, it is expected to become a sustained yield unit when the accelerated harvest schedule is completed and regrowth reaches marketable size. Regrowth is expected to take approximately 50 years.

There is medium to high demand for the sawlogs, chipwood, post and poles and house logs harvested. Commercial firewood has been harvested on approximately 200 acres per year. Approximately 1,400 cords of firewood for personal use are salvaged annually.

Noncommercial Woodland

Brothers Portion

There are almost 450,000 acres of noncommercial woodland in the Brothers portion summarized in Table 23. No noncommercial woodland exists in LaPine portion.

There are approximately 218,000 acres of juniper woodlands in the Brothers portion of the planning area available for harvest of noncommercial woodland products.

Table 23. Noncommercial Woodland, Brothers Portion, Brothers/LaPine Planning Area

	Public Acres
Total woodland	449,739
Woodland unavailable for harvest of woodland products	231,739
Woodland available for harvest of woodland products	218,000

Approximately 2,800 cords of firewood are harvested annually from 500 acres. In addition, approximately another 300 cords are harvested by commercial operators from 300 acres. In addition, some post and poles are harvested for personal use.

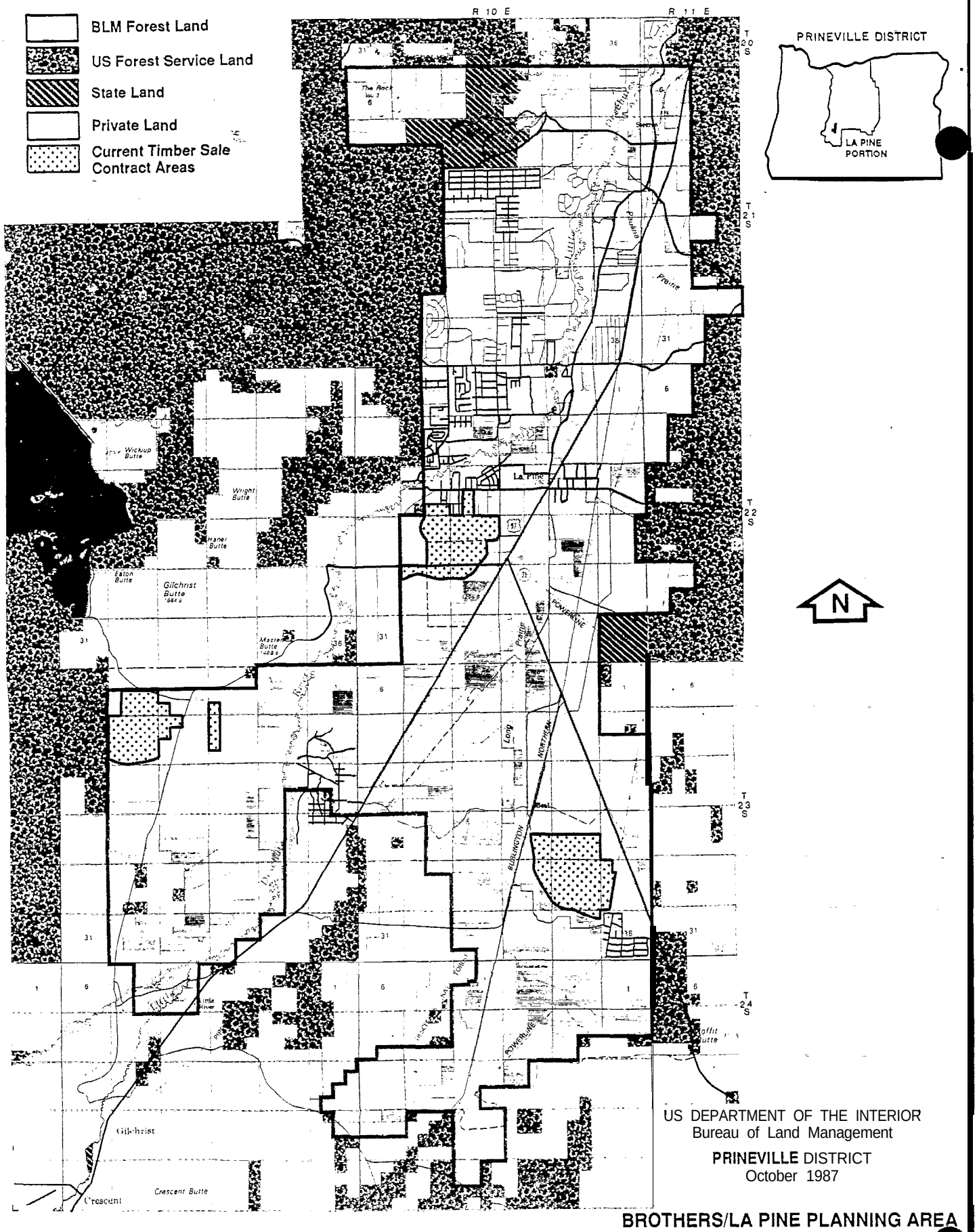
Livestock Grazing

LaPine Portion

Grazing in the LaPine portion is leased under Section 15 of the Taylor Grazing Act. Nine livestock operators currently hold grazing leases on 13 grazing allotments covering 22,230 acres as shown on Map 15 and Table 24.

Use levels on the allotments are light to moderate. Grazing management is best described as light, season-long grazing. Of the 3,031 AUMs allocated on the LaPine grazing allotments, 2,019 were sold in 1986. Appendix F lists allotments by management category.

Timber harvest in the past five years has significantly increased the amount of grass production. Approximately 6,800 AUMs of transitional forage are unallocated. No demand currently exists for this forage.

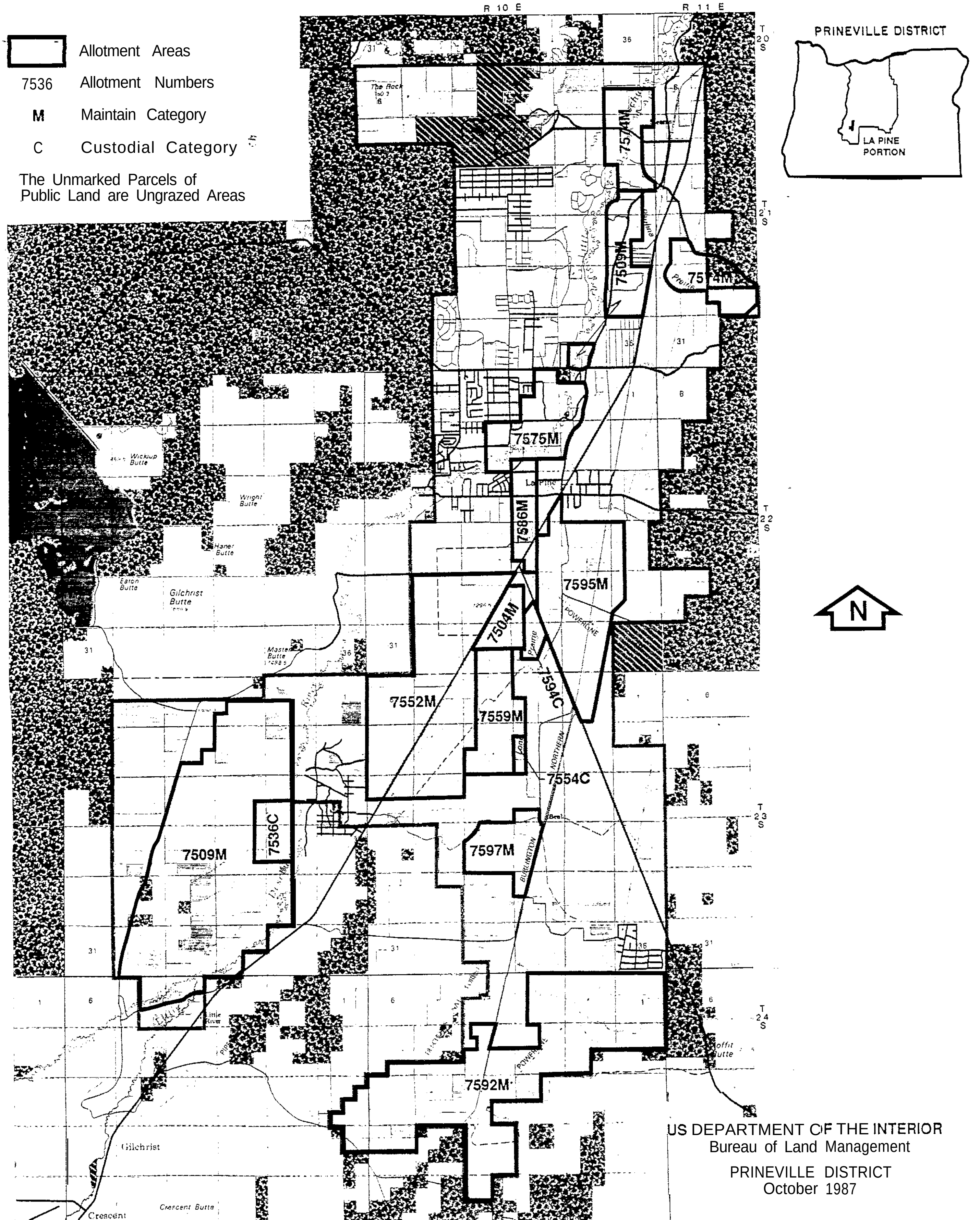


US DEPARTMENT OF THE INTERIOR
Bureau of Land Management

PRINEVILLE DISTRICT
October 1987

BROTHERS/LA PINE PLANNING AREA

MAP 14
Timber Management Areas
La Pine Portion



Allotment Areas
7536 Allotment Numbers
M Maintain Category
C Custodial Category
The Unmarked Parcels of Public Land are Ungrazed Areas
R 10 E
R 11 E
T 20 S
T 21 S
T 22 S
T 23 S
T 24 S
PRINEVILLE DISTRICT
LA PINE PORTION
N
7574M
7509M
7575M
7586M
7595M
7504M
7594C
7552M
7559M
7554C
7536C
7597M
7592M
La Pine
Wickiup Butte
Wright Butte
Haner Butte
Eaton Butte
Gilchrist Butte
Masten Butte
POWERLINE
NORTHERN
BURLINGTON
Little River
Gilchrist
Crescent
Crescent Butte
The Rock

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BROTHERS/LA PINE PLANNING AREA

MAP 15
Livestock Grazing Allotments
La Pine Portion

1 0 1 2 MILES

Table 24. Grazing Management, LaPine Portion, Brothers/LaPine Planning Area

Category[1]	Number of Allotments	Public Land Acres	Estimated Present Production AUMs	Existing Authorized Use AUMs
I	0	0	0	0
M	10	21,767	4,016	2,954
C	3	463	77	77
Uncategorized	-	23,651	2,800	0
TOTAL	13	45,881	6,893	3,031

1/ I- improve
M- maintain
C- custodial

Wild Horses

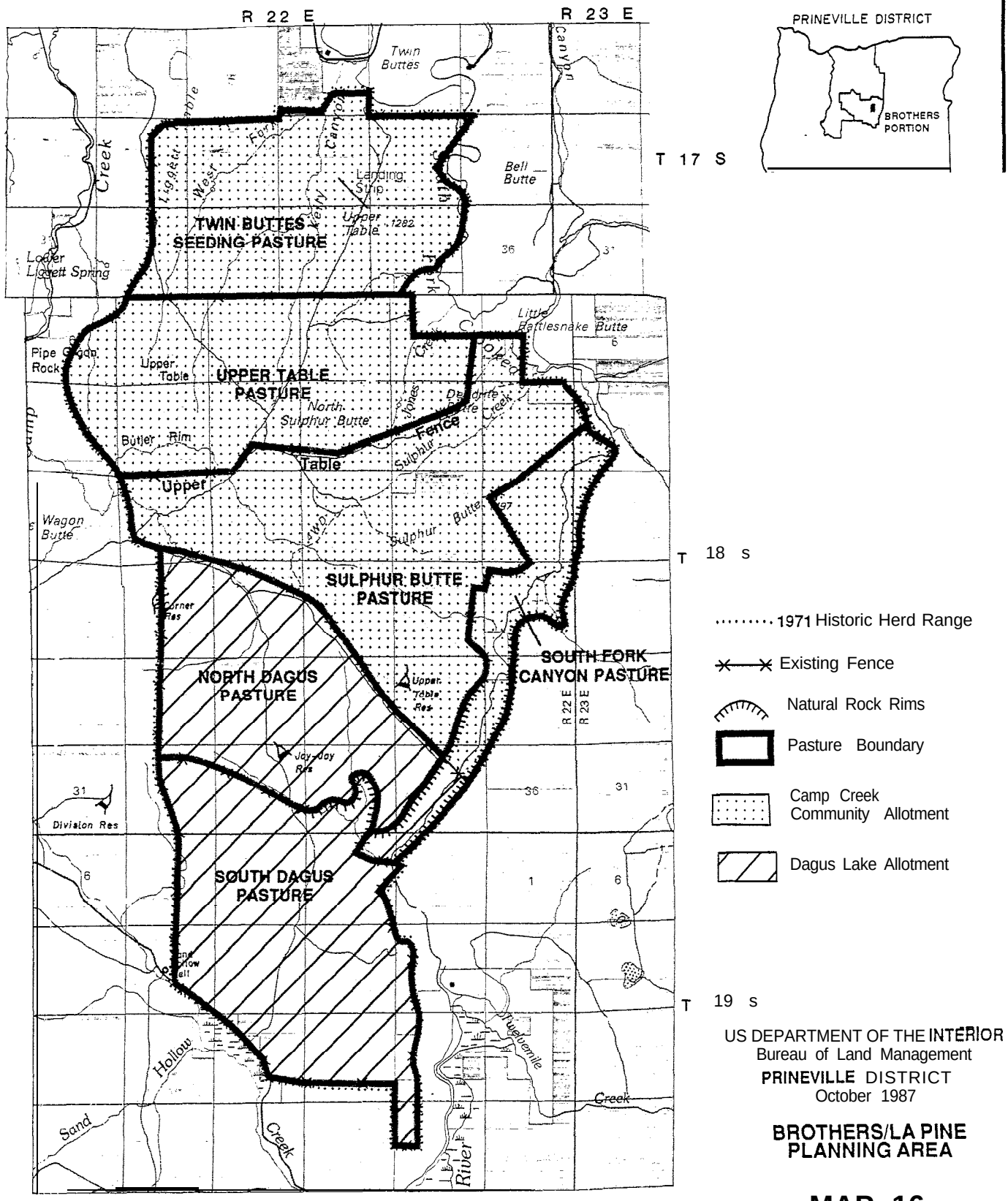
Currently, 14 horses roam on public land in the Brothers/LaPine Planning Area. When the Wild Horse and Burro Act was passed in 1971, the horses roamed a 27,000-acre area which constitutes their historical herd range. This area is shown on Map 16.

Originally these horses were thought to be unauthorized animals on public land and were not addressed as wild horses. New information indicates these horses are "wild" as defined by the Wild Horse and Burro Act.

The 14 horses are in two small bands and range 17,000 acres in the Camp Creek Community cattle grazing allotment. Four animals occupy the South Fork Canyon riparian pasture year-round. Ten animals range in the Sulfur Butte, Upper Table and Twin Buttes seeding pastures. This herd is restricted to one of three pastures when fence gates are closed for cattle control from April through October. During the winter, the horses roam the area as open gates allow. Horses do not occupy 10,000 acres of their historical herd range in the Dagus Lake Allotment due to year-round gate closure between Camp Creek Community and Dagus Lake Allotments.

Herd numbers have been relatively stable since 1976. A few colts are occasionally observed, but the population fails to increase substantially. The reason for the lack of growth in the herd's size is unknown.

Wild horses near Sulphur Butte



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BROTHERS/LA PINE PLANNING AREA

MAP 16

Wild Horses Range Brothers Portion

Wildlife Habitat

LaPine Portion

Upland Habitat Diversity

Habitat diversity is the variety of land forms, vegetation, vegetation fypes and water in any given habitat type. For example. lodgepole pine adjacent to wet meadows increases habitat diversity around the perimeter of the wet meadow (edge effect). A variety of plant structure (physical aspects of vegetation) and plant species increases habitat diversity. Specific examples would be clumps of high grass in a grazed meadow, several age classes of willow along a stream and snags or dead trees in a stand of timber. The diversity of wildlife species is directly related to vegetative diversity and both are an integral part of habitat stability.

The diversity of vegetation in any given habitat depends on its ecological status. Habitat diversity can be correlated with ecological status. Mid-or late-seral ecological status generally has greater habitat diversity than early-seral or climax condition.

Wildlife habitat is considered as the prime determinant of wildlife welfare and, since wildlife usually responds to vegetative structure rather than composition, structurally similar plant communities are grouped into distinct and important habitat types.

There are approximately 340 wildlife species within the planning area. Evaluation of the effects of management practices on the total population of each species is very difficult. However, the life form concept, the grouping of animals based on specific requirements for feeding and reproduction, allows a grouping of all wildlife species . found in the planning area into one or more of the 16 life form groups which are summarized in Appendix N.

The major wildlife habitat types occurring on public lands are iodgepole pine-bitterbrush-grass, wet meadow and riparian. Approximately 91 species are dependent on lodgepole pine-bitterbrush-grass type (Thomas, et al.).

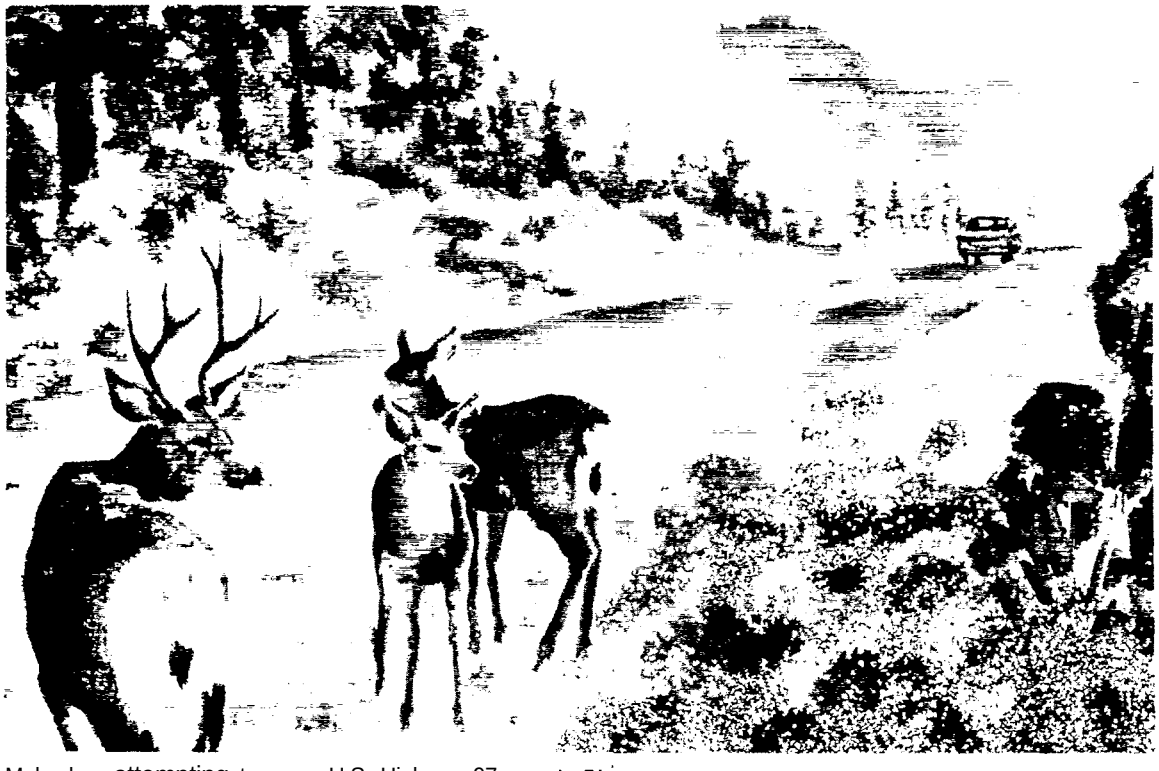
Lodgepole more than 50 years old, with trees greater than 11 inches diameter, is considered a unique and important habitat type. Only scattered stands remain. Nearly all forestland has been, or will be, harvested as a result of the Mountain Pine Beetle infestation.

Big game and special status species are discussed in detail because of their economic importance, legal status or sensitive position.

Big Game Habitat

Mule Deer

Mule deer are found throughout the LaPine portion of the planning area with most use occurring during migration. The heaviest use by mule deer is indicated on Map 17. Certain sections of this migration corridor, however. appear to be more important as deer travel routes than others. Areas immediately south of Lava Butte, near LaPine State Park and between LaPine and Gilchrist appear to be areas of maximum deer crossing (ODFW. 198586). Deer populations on public lands are slightly below ODFW management objective numbers.



Mule deer attempting to cross U.S. Highway 97 near LaPine

Rocky Mountain Elk

Elk are scattered throughout the LaPine portion of the planning area in small groups. No crucial elk winter range has been identified in the area. No ODFW management objective numbers have been identified.

Riparian Habitat

Wildlife riparian habitat condition is directly related to ecological status. Plant diversity in riparian areas increases with an increase in ecological status. Wildlife species diversity increases with a higher ecological status. As ecological status increases. the total area of riparian habitat also increases. Besides allowing for an increase in wildlife species using the habitat, it also provides habitat for more individuals within each species.

Cavity dwellers including woodpeckers, other small birds, small owls and flying squirrels are found throughout the area. Populations of some woodpeckers are thought to be declining because of the reduction in older age-class trees.

Streamside riparian habitat in the LaPine area consists of 10 acres along 1.5 stream miles on public land. Map 17 shows the location of known riparian habitat. These are used during all seasons of the year by nearly 80 percent of the 340 wildlife species in the area.

Present riparian habitat condition in the LaPine portion is good to excellent.

Fish Habitat

Fish habitat along the Little Deschutes River and Crescent Creek is good to excellent. Primary species are brown and rainbow trout, mountain white fish and brown bullhead. Occasional species include three-spined stickleback and brook trout.

Special Status Wildlife Species

Table 25 lists federal and state-listed special status wildlife species for the Brothers LaPine Planning Area. Bald eagles are primarily winter migrants in the Paulina and Crooked River valleys. Occasional spring and summer feeding use occurs in the LaPine area from nesting pairs on adjacent U.S. Forest Service land. Ferruginous and Swainson's hawks are primarily winter visitors in both areas: they have had occasional to rare nest locations.

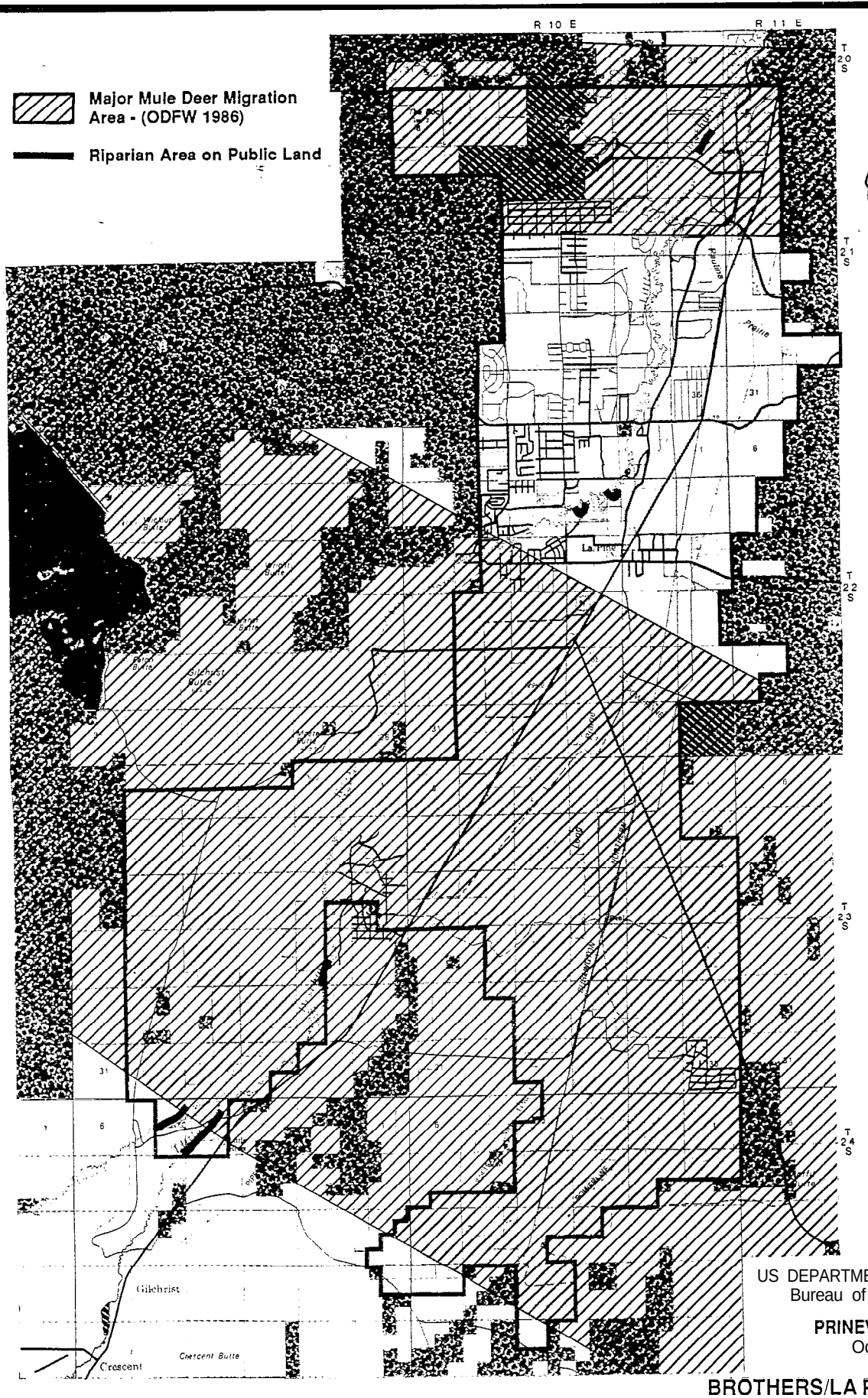
The peregrine falcon is strictly a winter migrant. Sage grouse are found scattered throughout the Brothers portion but are not present in the LaPine portion. The Townsend big eared bat is found primarily in lava caves in the Brothers area. One cave on public land is considered one of the most important sites in Oregon.

Table 25. Special Status Animal Species, Brothers/LaPine Planning Area

Name	Status	
	State[1/]	Federal[2/]
Bald eagle	1	T
Ferruainous hawk	2	C
Peregrine falcon		E
Swainson's hawk	2	C
Townsend's western big-eared bat		C
Western sage grouse	3	C

[1/] From Rare, Threatened and Endangered Plants and Animals of Oregon, Oregon Natural Heritage Data Base, April 1987.
1 – Endangered or threatened throughout range
2 – Endangered or threatened in Oregon but more common elsewhere
3 – Of concern in Oregon

[2/] From Federal Register Notice of Review, September 18, 1985
E – Endangered
T – Threatened
Federal candidate category 2 (more information is needed before a decision can be made to either propose the species for listing as endangered or threatened or to drop the species from further consideration)



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BROTHERS/LA PINE PLANNING AREA

MAP 17
Deer Migration Routes/ Riparian Areas La Pine Portion

Fire Management

Currently all wildfires on public land or threatening public land are aggressively suppressed, except 107,000 acres covered by Bear Creek Fire Use Plan.

The Brothers portion of the planning area averages 69 wildfires each year, ranging from isolated single trees to several thousand acres. During the last 14 years, the average size of a given fire has been 26 acres. Most fires have been caused by summer lightning storms. Size and fire behavior depend on weather and fuel conditions.

Fire is a natural part of the ecosystem: fire return intervals for similar fuel types is 16 years (Martin, 1982). The predominant fuel types are sagebrush/grass and juniper/sagebrush.

Overall resource damage has been minor. However, some losses have occurred to improvements such as fences.

The LaPine portion of the planning area averages two fires per year; the average size is less than one acre. About 60 percent have been human-caused.

The planning area has been evaluated for damage to resource values by fire. Values at risk classes have been established and range from Class 1 (lowest values at risk) to Class 6 (highest, special consideration values at risk) and are shown on Maps 18 and 19. Values at risk are the basis for determining suppression action.

Recreation

There are more than 248,000 visits per year by recreationists on public lands within the Brothers' LaPine Planning Area. Table 26 summarizes current estimated recreation use on public land within the planning area.

Table 26. Estimated Public Land Recreation Use, Brothers/LaPine Planning Area[1/]

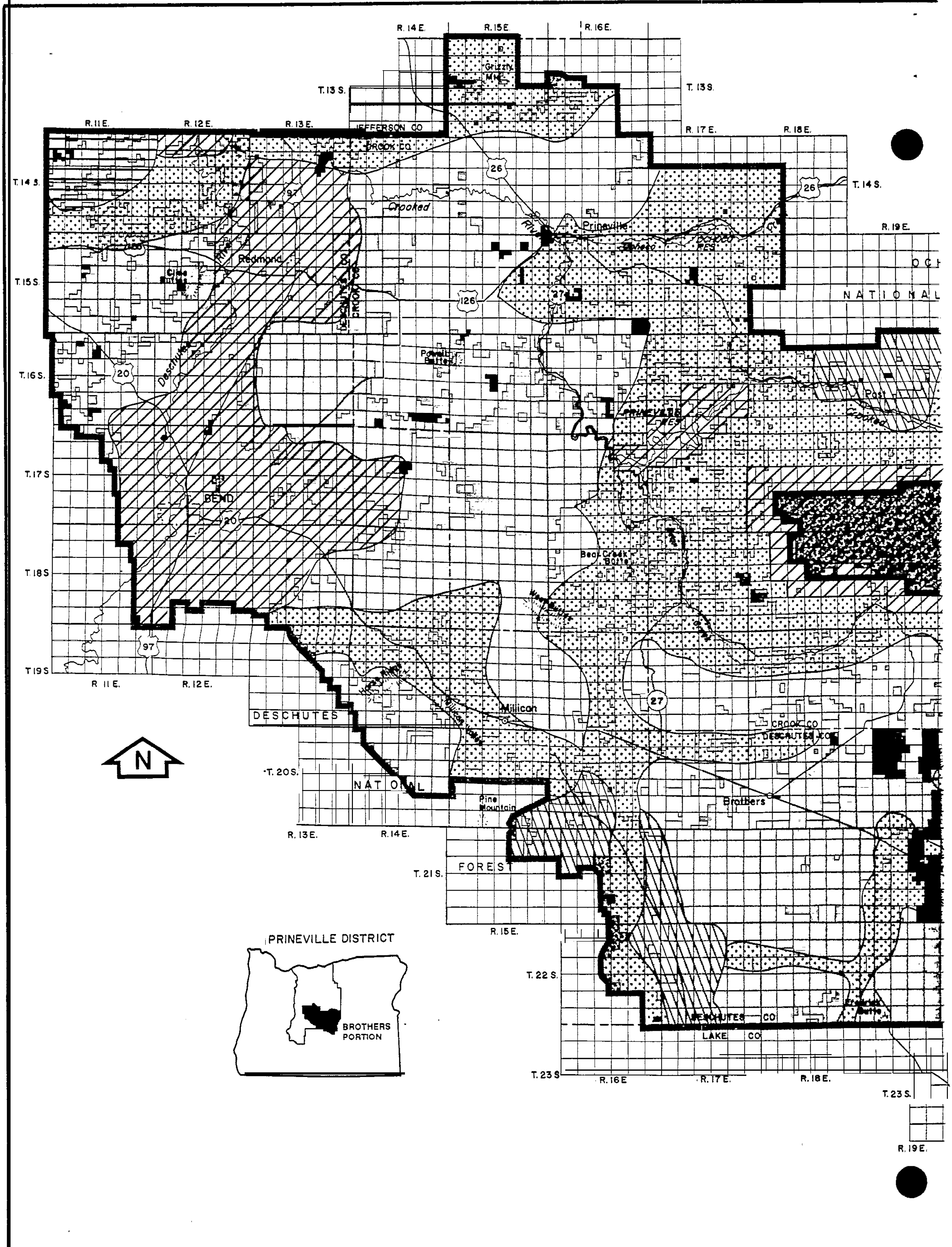
Activity	Recreation Visits
Driving for pleasure	110,000
Fishing	33,000
Rockhounding	31,000
Off road vehicle (ORV)	25,000
Hunging	16,000
Hiking and camping	12,000
Other[2/]	21,000
TOTAL	248,000 ---

1/ No data exists for LaPine portion of the planning area.
2/ Includes target shooting, watersports, horseback riding, photography, picnicking and cave exploration.

Source: Brothers Recreation Visitor Use Study, 1979 to 1983

The Chimney Rock Recreation Site on the Crooked River is the only developed recreation site on public land in the planning area. The eight-mile portion of the Crooked River downstream from Bowman Dam receives approximately 65,000 visits annually.

Fishing the Crooked River near Chimney Rock Recreation Site



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T. 13 S.
Grizzly Mtn.
JEFFERSON CO
CROOK CO
R. 11 E.
R. 12 E.
R. 13 E.
R. 17 E.
R. 18 E.
T. 14 S.
26
97
Crooked
Prineville
Redmond
DESCHUTES CO
CROOK CO
R. 19 E.
126
27
T. 15 S.
NATIONAL
Powell Buttes
20
Deschutes
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PRINEVILLE RES.
Post
T. 17 S.
BEND
20
Bear Creek Butte
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97
T. 19 S.
R. 11 E.
R. 12 E.
Millican
27
DESCHUTES
CROOK CO
DESCHUTES CO
T. 20 S.
NATIONAL
Pine Mountain
Brothers
R. 13 E.
R. 14 E.
T. 21 S.
FOREST
R. 15 E.
T. 22 S.
DESCHUTES CO
LAKE CO
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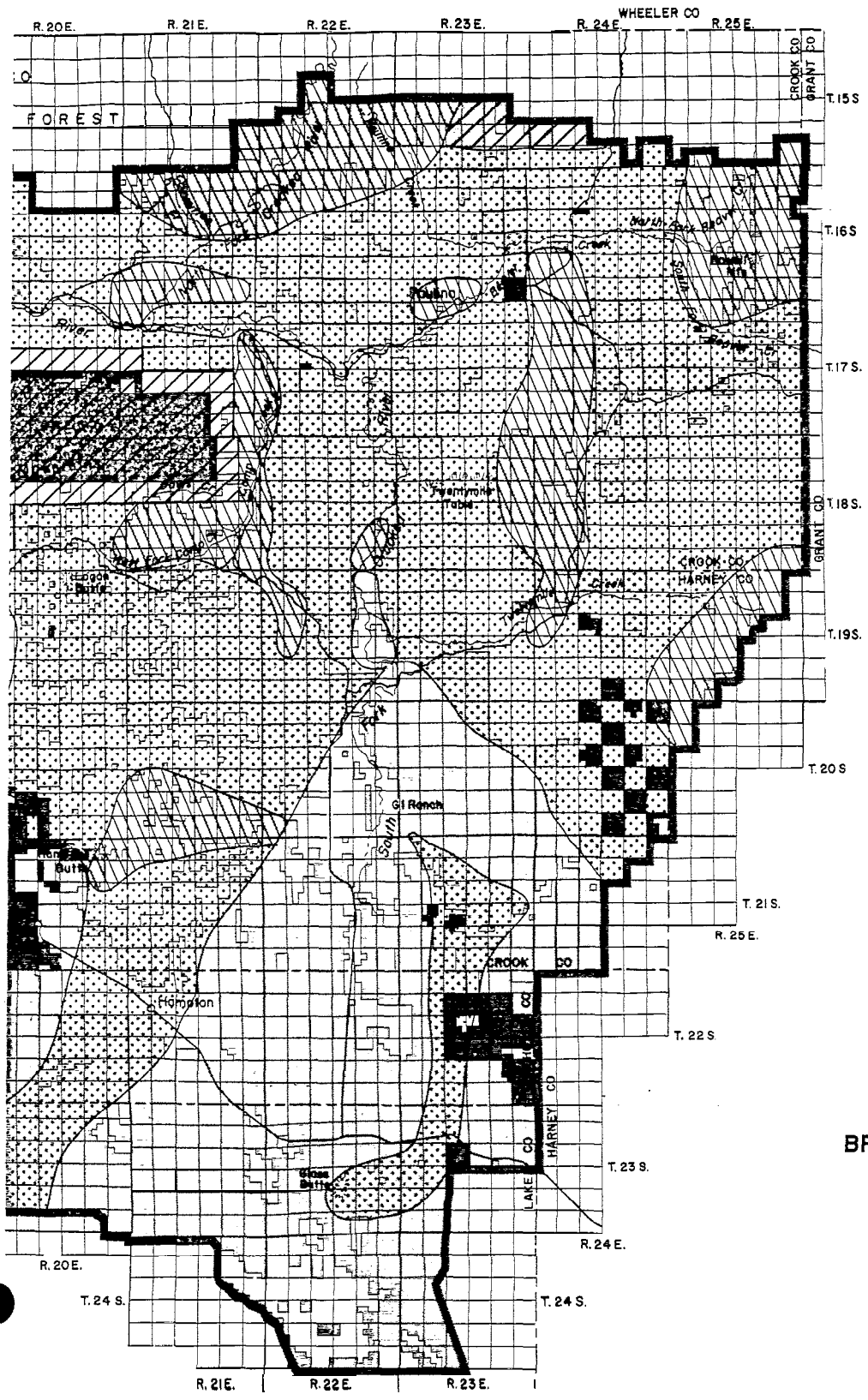
PRINEVILLE DISTRICT
BROTHERS PORTION



RESOURCE VALUE AT RISK

- Class 1 & 2 (Low Value)
- Class 3
- Class 4
- Class 5
- Class 6 (High Value)

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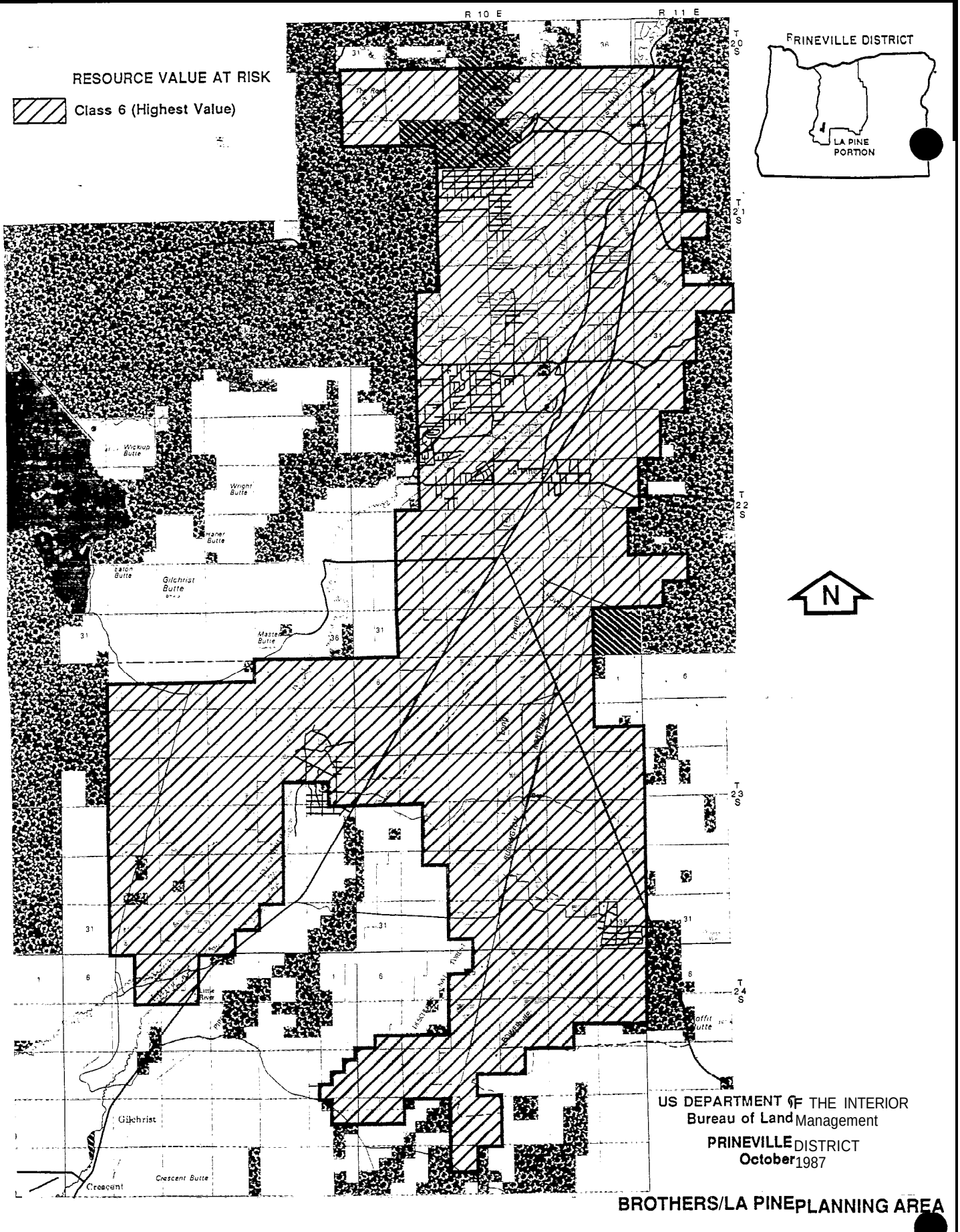
BROTHERS/LA PINE PLANNING AREA

MAP 18
Fire Management
Brothers Portion



MAP19
Fire Management
La Pine Portion

Recreation use in the Brothers/LaPine Planning Area has increased approximately one percent per year during the last six years and is expected to continue increasing at a similar rate over the next 5 to 10 years.

Appendix 0 lists additional areas- containing high quality or unusual recreation values.

Off Road Vehicle Use

Off road vehicle (ORV) use is primarily associated with hunting, fishing, rockhounding and driving for pleasure. Existing trails receive most ORV use. Rocky terrain, steep slopes and dense clusters of junipers restrict cross-country travel in much of. the Brothers portion. Low levels of ORV use occur throughout the LaPine portion.

Cross-country ORV use occurs during hunting season in the LaPine, Brothers, Hampton, Prineville Reservoir and Millican Valley areas and also in the Frederick, Hampton and Cline Buttes area. Map 10 in Chapter 2 displays areas designated as limited or closed to ORV use as well as areas of ORV use concentration.

Table 27 lists areas where limited or closed ORV designations have been implemented.

Off-road vehicle use in Millican Valley has been guided by the Millican Valley ORV Management Plan which was completed in 1979. This plan identifies seasons of use for both casual and competitive riding within the 60,000 acre area.

Table 27. Areas Limited or Closed to ORV Use, Brothers/LaPine Planning Area

Area	Public Acres	Type of Designation
Badlands WSA	32,216	Limited to existing roads and trails
	5	Closed
Cougar Well WSA	18,435	Limited to existing roads and trails
Fox Butte Winter Range	11,003	Limited to designated roads during deer season
Gerry Mountain WSA	20,700	Limited to existing roads and trails
Hampton Butte WSA	10,600	Limited to existing roads and trails
Horse Ridge RNA	600	Closed. National Natural Landmark
Lower Crooked River	600	Limited to designated roads in campground areas
Lower Crooked River	4,000	Closed to all ORV use due to steep slopes/high scenic values
Millican Valley ORV Area 1/	60,000	Limited use for organized and casual cross-country ORV
	15	Closed to ORV use due to steep slopes/high scenic values
North Fork WSA	10,983	Limited to existing roads and trails
	2	Closed
Prineville Reservoir	8,000	Limited to designated roads and trails and existing roads and trails
Sand Hollow WSA	8,791	Limited to existing roads and trails
South Fork WSA	19,628	Limited to existing roads and trails
	3	Closed
Tumalo Deer Winter Range	3,902	Limited to designated roads in winter
TOTAL LIMITED ORV USE	204,858	
TOTAL CLOSED TO ORV USE	4,615	

1/ Management guided by Millican Valley ORV Plan

Rockhounding

Rockhounding in the Brothers portion of the planning area is a popular recreational activity and is summarized in Table 28. Map 20 shows significant rockhounding areas within the planning area. No significant rockhounding occurs in the LaPine portion.

A minerals segregation covering 36,511 acres of public land exists in the vicinity of Glass Buttes. The segregation prohibits entry under the mining laws for obsidian and chalcedony.

Table 28. Rockhounding Areas, Brothers/LaPine Planning Area

Area Name	Public Access Available	General Location	Type of Mineral	Estimated Quantity	Public Acres	Quality
Bear Creek Mouth	Yes, by hiking	N&S of Prineville Reservoir	Agate moss agate	Limited pockets	1,300	Moderate
Bear Creek	Yes, by dirt road	10 mi due N of Brothers	Petrified wood	Large amount	200	Moderate to High
Congleton Hollow/South Fork	Yes, by gravel and dirt road	4-8 mi SW of Paulina	Pink & green limb casts, incl. dendrites, agates, petrified wood	Good	33,000	High
Eagle Rock	Yes, by primitive dirt road	12 mi SW of Prineville off Paulina Highway	Moss agate angel wing	Scattered	400	Moderate to high
Fischer Canyon	Yes, by dirt road	N of Bear Cr. Rd.	Petrified wood	Scattered	1,920	High
Glass Buttes	Yes, by dirt road	12 mi SE of Hampton	8 distinct varieties of obsidian	Scattered	9,600	High
Hampton Wood Owens Water/South Pole Creek	Yes, by dirt road and hiking	12-14 mi N of Hampton	Green/Black petrified wood	Numerous scattered areas	2,240	Moderate to High
North Ochoco Reservoir	Yes, by hiking	Adjacent to Ochoco Reservoir, north side	Ochoco jasper	Very limited	640	High
Reservoir Heights	Yes, by hiking	2-3 mi NW of Prineville Res.	Black moss agate	Limited pockets	1,280	Moderate
Smokey Mountain	Yes, by dirt road	14 mi north of Brothers	Limb cast	Scattered pockets	700	Moderate

Rockhounds at Congleton Hollow

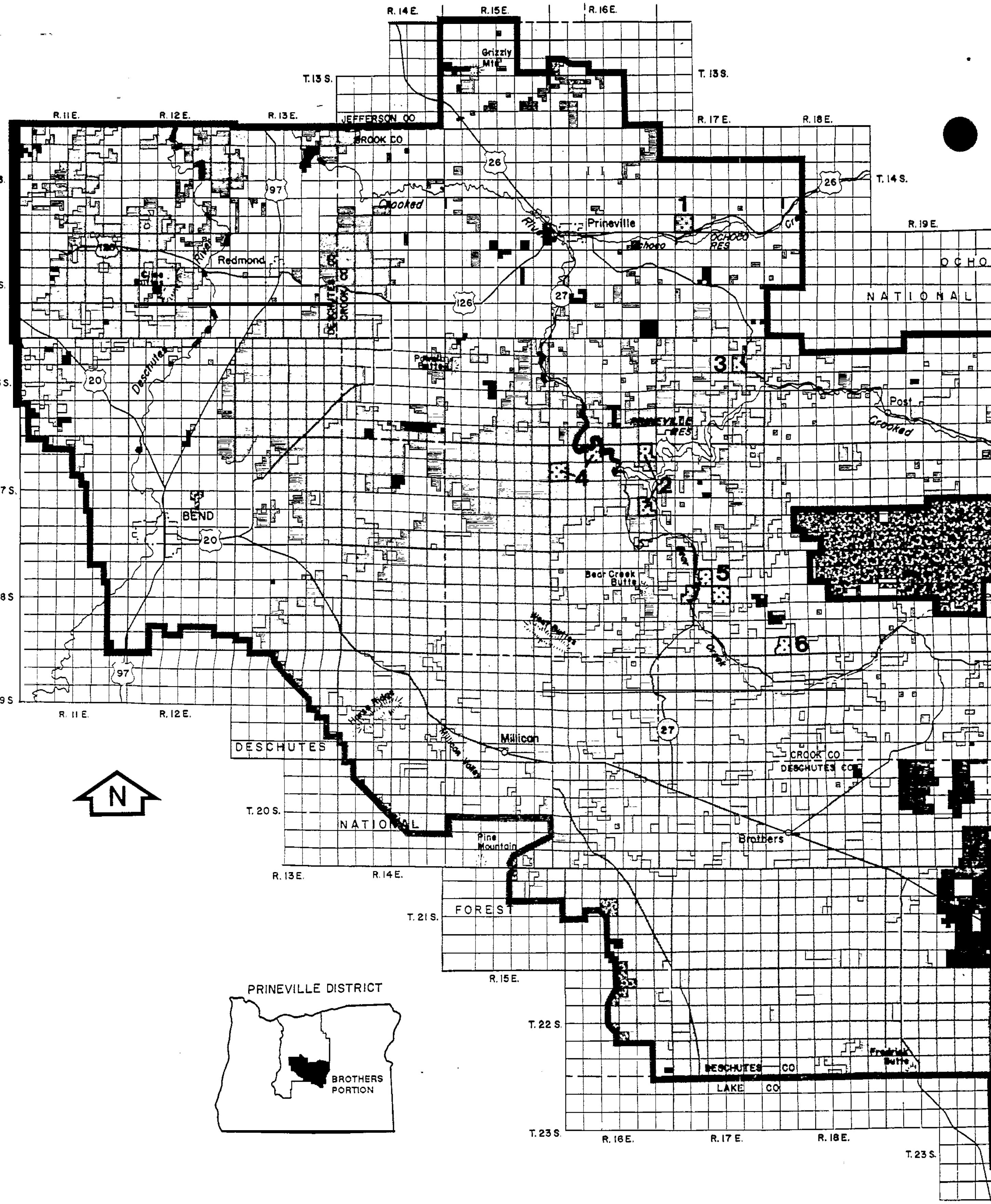
Wild and Scenic Rivers

The National Wild and Scenic Rivers System was created by Congress (PL 90-542) to preserve selected rivers in natural, free-flowing conditions. Segments of the Crooked and Deschutes and Little Deschutes rivers are included in the Nationwide Rivers Inventory, compiled by the National Park Service. Map 20 and Table 29 show those segments of rivers included in the Nationwide Rivers Inventory which cross public land in the planning area.

A two-phase process has been proposed by the Bureau of Land Management to study rivers included in the Nationwide Rivers Inventory for possible addition to the National Wild and Scenic Rivers System. The first phase is the eligibility determination which identifies rivers or segments of rivers which may be eligible for wild, scenic or recreational designation. The second phase is the suitability report which is a more detailed study that makes a final recommendation to the Secretary of the Interior and Congress regarding suitability or unsuitability of a river for wild, scenic or recreational designation. Congress makes the final designation.

Two river segments were determined to possess outstandingly remarkable resource values and are free-flowing, thus eligible for inclusion in the National Wild and Scenic Rivers system. The two segments found to be eligible are a 20-mile segment of the North Fork of the Crooked River located between the U.S. Forest Service boundary near Big Summit Prairie and Teaters Ranch. In this area the North Fork crosses approximately 11 miles of the Ochoco National Forest (which has been determined by Ochoco National Forest to be eligible), 6 miles of BLM-administered land and 3 miles of private land. The other eligible segment is an 8-mile segment of the Lower Crooked River between Bowman Dam at Prineville Reservoir and Hoffman Dam. All of this segment is located on BLM-administered land except a small portion of land near Bowman Dam which is administered by the Bureau of Reclamation.

The North Fork of the Crooked River is a free-flowing river that winds through a large tract of public land currently being studied for possible wilderness designation. This river is a tributary of the Crooked River and has an average annual flow of 167 cfs. The river canyon ranges from 300 to 900 feet and its topography includes vertical to steep-sloped basalt. Although there is some evidence of past timber harvest and vehicle access roads, the river canyon area contains outstandingly remarkable scenic, botanical and zoological values. This river segment has the potential of being classified as wild under the National Wild and Scenic Rivers Act.



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Crooked
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Prineville
Ochoco
OCHOCO RES
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Redmond
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DESCHUTES CO
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Powell Buttes
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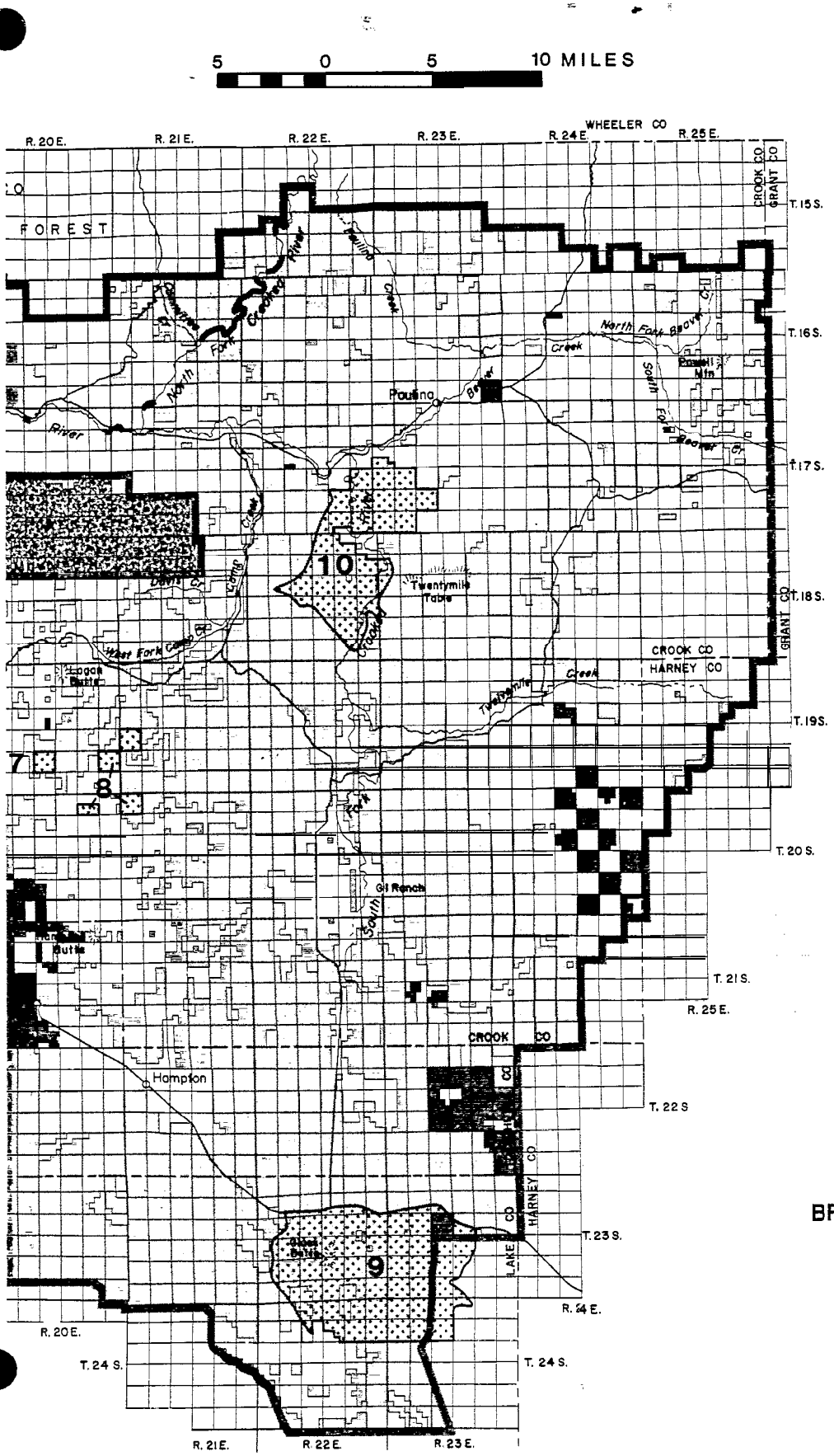

PUBLIC ROCKHOUNDING AREAS

Area Number/Name	Type of Mineral
1 North Ochoco Reservoir	Ochoco Jasper
2 Prineville Reservoir	Agate - Moss Agate
3 Eagle Rock	Agate, Angel Wing, Plume
4 Reservoir Heights	Agate
5 Fischer Canyon	Petrified Wood
6 Bear Creek	Petrified Wood
7 Smokey Mountain	Limb Cast
8 Hampton Wood	Petrified Wood
9 Glass Buttes	Obsidian
10 Congleton Hollow/ South Fork	Limb Casts, Agate, Petrified Wood, Stone Casts, Dendrites

RIVER SEGMENTS INCLUDED IN NATIONWIDE RIVERS INVENTORY

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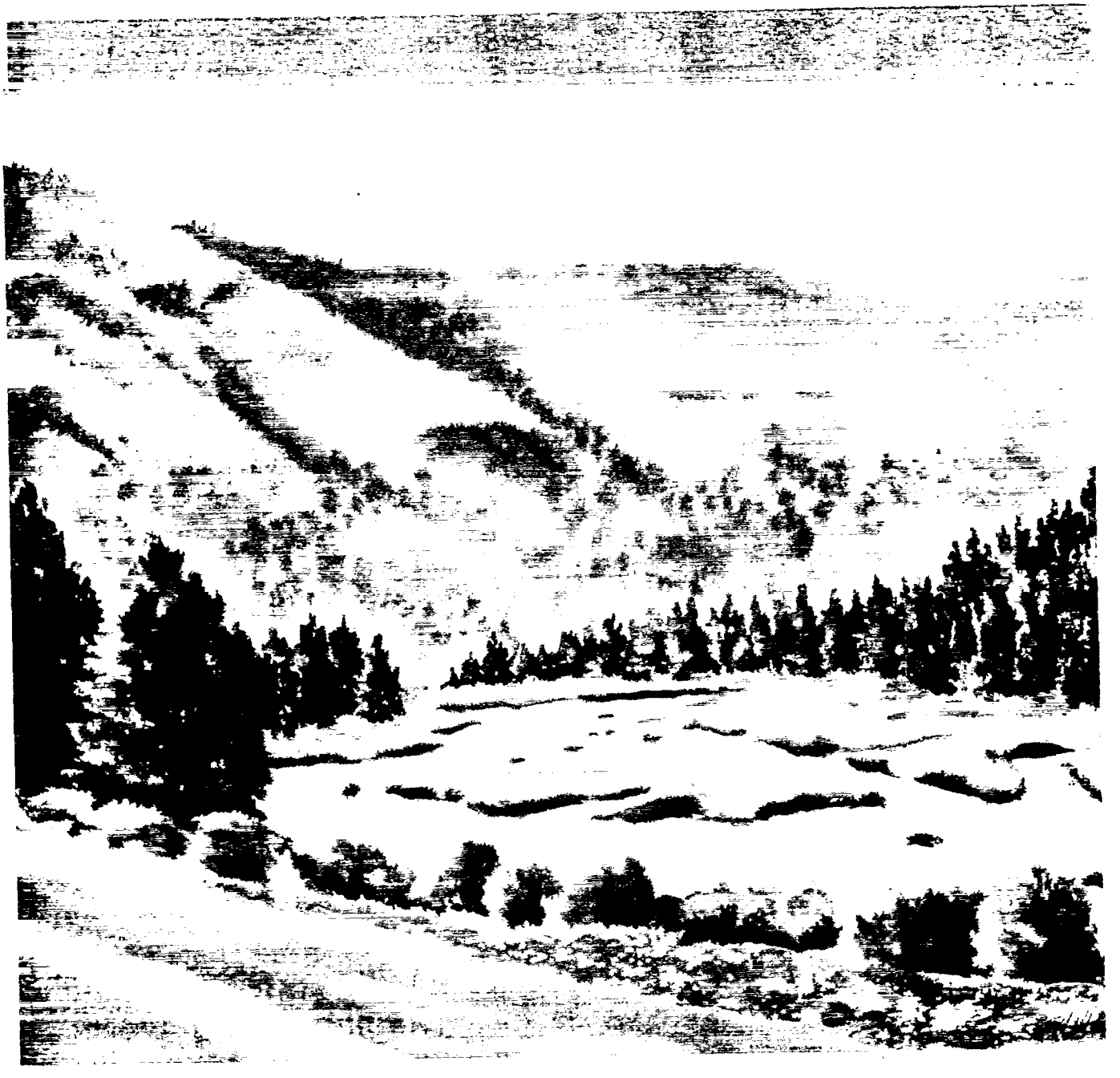
BROTHERS/LA PINE PLANNING AREA

MAP 20
Rockhounding Areas, and Wild, Scenic or Recreational River Study Areas Brothers Portion



Crooked River downstream from Bowman Dam

The Lower Crooked River downstream from Prineville Reservoir is regulated through Bowman Dam and has an annual average flow of 446 cfs. This river meanders through a scenic and rugged basalt canyon which includes basalt cliffs, escarpments and clusters of western juniper growing on steep hillsides. The Chimney Rock Recreation Site and State Highway 27 are adjacent to this river. This river segment has the potential of being classified as recreational under the National Wild and Scenic Rivers Act.

The remaining river segments listed in Table 29 were determined to be ineligible for further study as potential wild, scenic or recreational rivers, due to the lack of outstandingly remarkable resource values. A copy of the eligibility determinations are available for review in the Prineville District Office.

A detailed suitability study will be completed for the eligible segments of the North Fork and Lower Crooked Rivers. This study will be conducted by BLM and will involve the Ochoco National Forest and the National Park Service and will be coordinated with other federal, state and local agencies. Opportunities for public involvement will be provided. Interim protection for these river segments will be provided pending a final decision regarding the suitability of these river segments for designation as components of the National Wild and Scenic Rivers system. No management activities will be allowed which would adversely affect the eligibility or classification of these two river segments under the National Wild and Scenic Rivers Act.

Table 29. Potential Wild, Scenic or Recreational Rivers, Brothers/LaPine Planning Area[1/]

	Total River Miles Identified in Nationwide Rivers Inventory	Number of River Segments Crossing Public Land Within Planning Area	Approximate Total River Miles Within Planning Area	Total Shoreline Mileage on BLM Administered Public Land Within Planning Area	Total Shoreline Mileage on Other Public Ownerships Within Planning Area	Total Shoreline Mileage on Private Land Within Planning Area
Deschutes River	202	10	64	3	37	24
Crooked River	107.3	12	92	19	3	70
Little Deschutes River	96.3	4	35	1	0.25	33.75

1/ According to the Nationwide Rivers Inventory

North Fork of the Crooked River

Areas of Critical Environmental Concern

There are some areas involving special resource qualities that may require different or more intense management practices to protect or enhance unique qualities.

Currently there are no designated areas of critical environmental concern in the Brothers/LaPine Planning Area. Eighteen areas were nominated by the public and BLM staff for designation. Appendix P lists the ACEC nomination and analysis process.

Six areas were dropped from further consideration because they failed to meet ACEC criteria after public review of the Brothers/LaPine Proposed Issues and Alternatives booklet published in March, 1987, and . evaluation of these areas by a BLM-interdisciplinary team and District Manager. Appendix P lists those ACECs which were dropped and indicates management direction.

The remaining 12 areas were determined to meet ACEC criteria and are listed in Table 30 and shown on Map 21. Horse Ridge is an existing RNA and is a National Natural Landmark, but has not yet been designated an ACEC.

Visual Resources

There are currently 300,000 acres of public land in the Brothers/LaPine Planning Area with high or sensitive visual qualities. Much of this land is located along the Crooked River and its primary tributaries between Smith Rocks and Paulina as well as near Bend, Redmond and adjacent to Highway 20 near Glass and Hampton Buttes and Horse Ridge (Map 22). Similar visual qualities are located in the Powell Buttes (south of Highway 126), and, along Highways 97 and 31 in the LaPine area (Map 23).

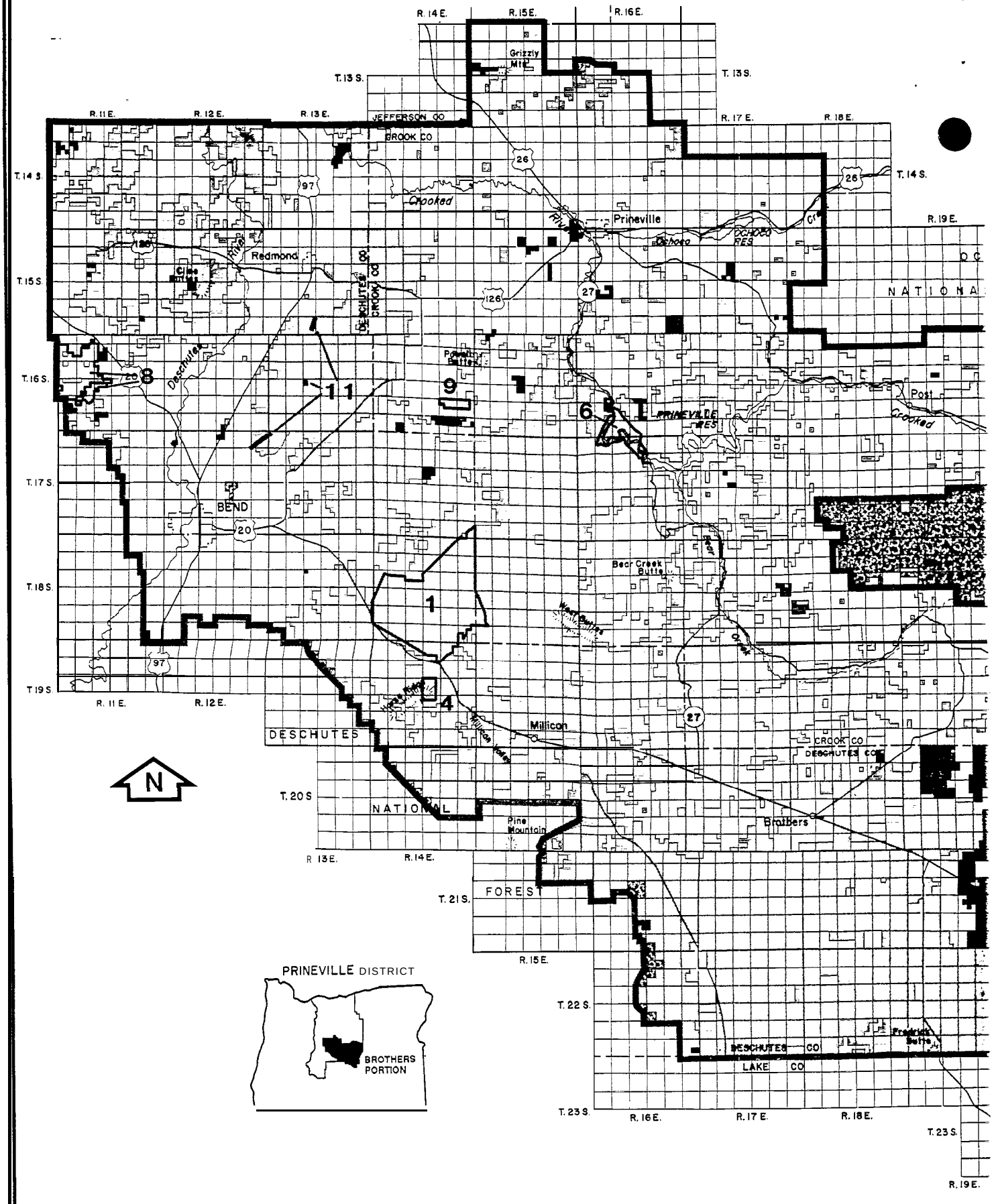
The remaining public lands generally do not contain high or sensitive visual qualities due to the lack of diversity in the landscape, vegetation, water or color. They may also contain unnatural intrusions.

Table 30. Areas Determined To Meet ACEC Criteria, Brothers/LaPine Planning Area

Area Name	General Location	Special Value	Public Land[1] Acres
Badlands	12 mi east of Bend	Primitive recreation area, contains interesting basalt formations, juniper forest, pictographs	16,860
Benjamin	7 mi SW of Hampton	Fills high priority RNA cell need for the High Lava Plains/Columbia Basin province (terrestrial Cell No. 7 Western juniper/Idaho fescue community)	640
Forest Creeks[2]	12 mi NW of Paulina	Partial component of high priority RNA cell need for High lava Plains/Columbia Basin province. (Aquatic Cell No. 2--First to third order stream originating in ponderosa pine zone and Terrestrial Cell No. 28--Willow communities in riparian area).	405
Horse Ridge	15 mi SE of Bend	Existing RNA/NNL, prime example of western juniper/big sagebrush/threadleaf sedge plant community.	600
Logan Butte	W end of Price Valley, 20 mi SW of Paulina	Vertebrate fossils, unusual in district	802
Lower Crooked River	15 mi south of Prineville	Riparian values, important fishery, recreation use, state scenic highway.	2,830
North Fork Crooked River	10 mi NW of Paulina	Riparian values, important fishery, recreation use, bald eagle, winter roost area	6,737
Peck's Milkvetch	5 mi NW of Tumalo	Sensitive plant (*Astragalus peckii*) habitat, critical deer winter range	3,902
Powell Butte	2 mi SW of peak of Powell Butte	Fills RNA cell need for High Lava Plains Columbia Basin Province (Terrestrial Cell No. 5--western juniper big sagebrush/bluebunch wheatgrass community and No. 6--western juniper bluebunch wheatgrass community both on steep slopes).	520
South Fork Crooked River	3 mi south of Paulina	Rioarian values, fishery, recreation, scenery	3,140
Wagon Road	3 parcels between Redmond and Bend	Remaining segments of original Huntington Road	160
Winter Roost	2 parcels near Paulina	Bald eagle winter roost areas	320

1/ Based on interdisciplinary team recommendation and district manager decision

2/ Adjacent to but separate and distinct from North Fork Crooked River area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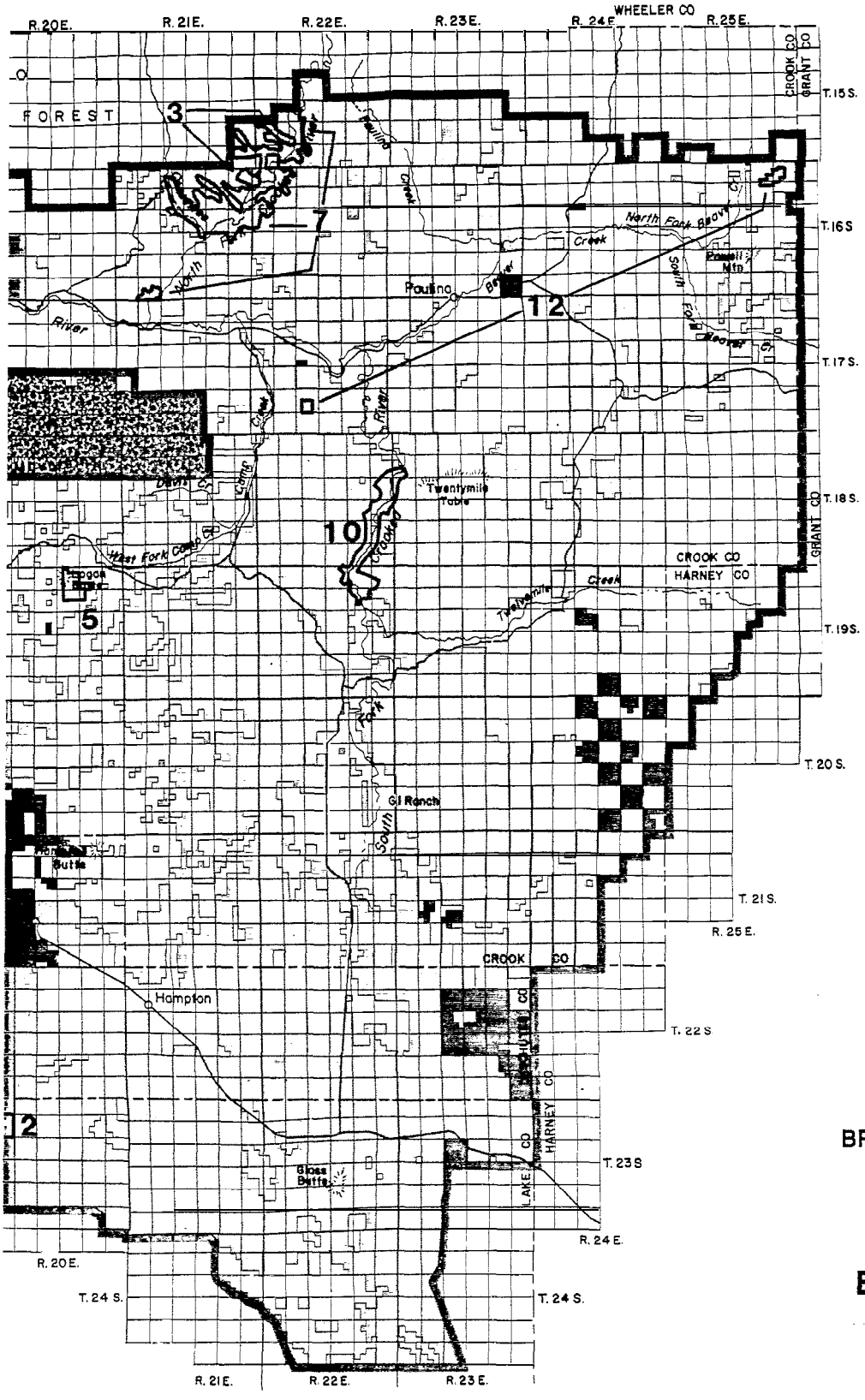
CROOK CO
Crooked
Prineville
Redmond
Deschutes
BEND
DESCHUTES
NATIONAL
FOREST
Millican
Brothers
Pine Mountain
Bear Creek Butte
PRINEVILLE RES
OCHOCO RES
Post
DESCHUTES CO
LAKE CO
N
PRINEVILLE DISTRICT
BROTHERS PORTION



AREAS PROPOSED FOR ACEC DESIGNATION IN THE PREFERRED ALTERNATIVE

1 Badlands
2 Benjamin
3 Forest Creeks
4 Horse Ridge
5 Logan Butte
6 Lower Crooked River
7 North Fork Crooked River
6 Peck's Milkvetch
9 Powell Butte
10 South Fork Crooked River
11 Wagon Road
12 Winter Roost

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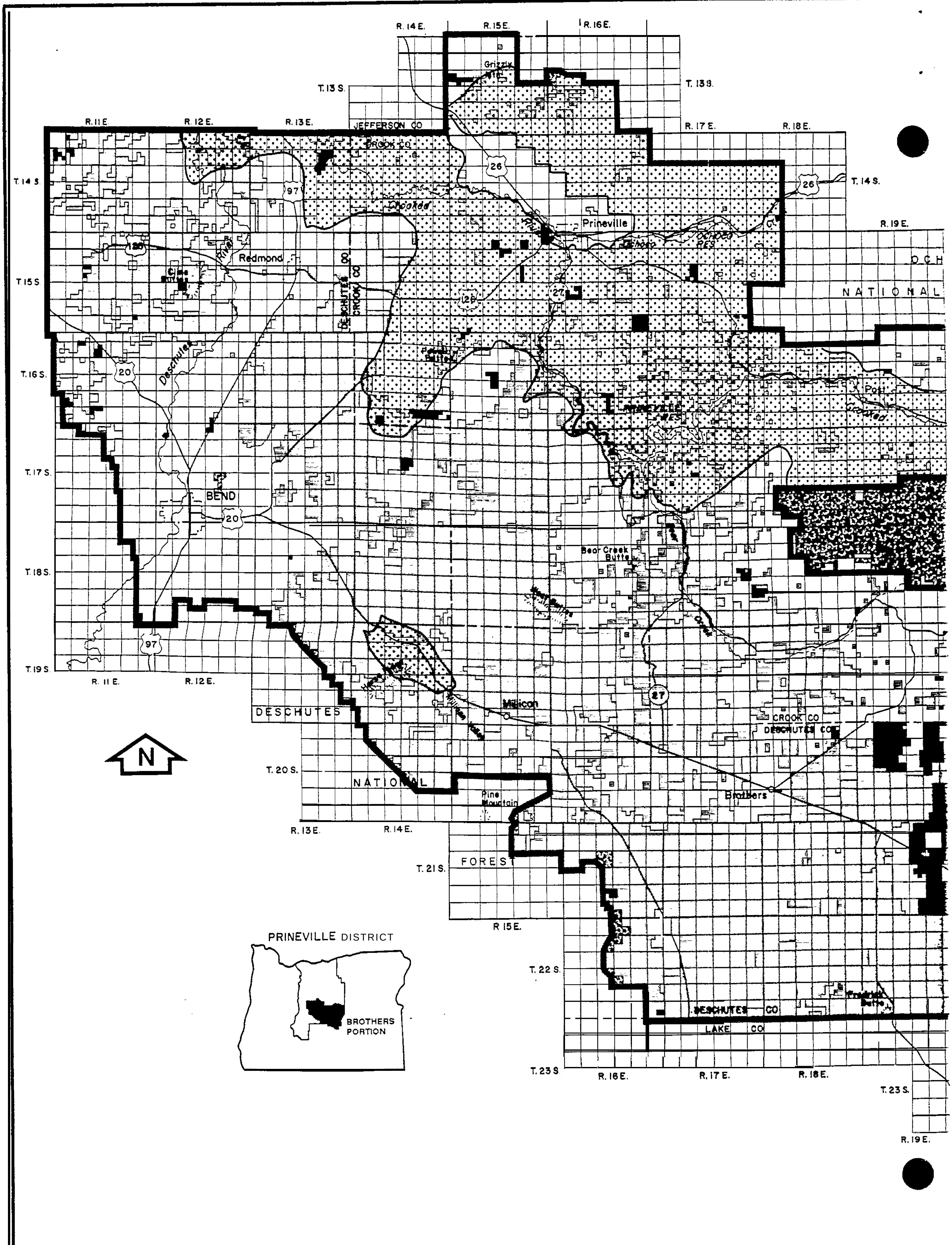
BROTHERS/LA PINE PLANNING AREA

MAP 21
Areas of Critical Environmental Concern Brothers Portion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Millican
Brothers
Pine Mountain
Bear Creek Butte
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CROOK CO
DESCHUTES CO
LAKE CO
DESCHUTES NATIONAL FOREST
OCHOCO NATIONAL
PRINEVILLE RES.
Crooked
Deschutes
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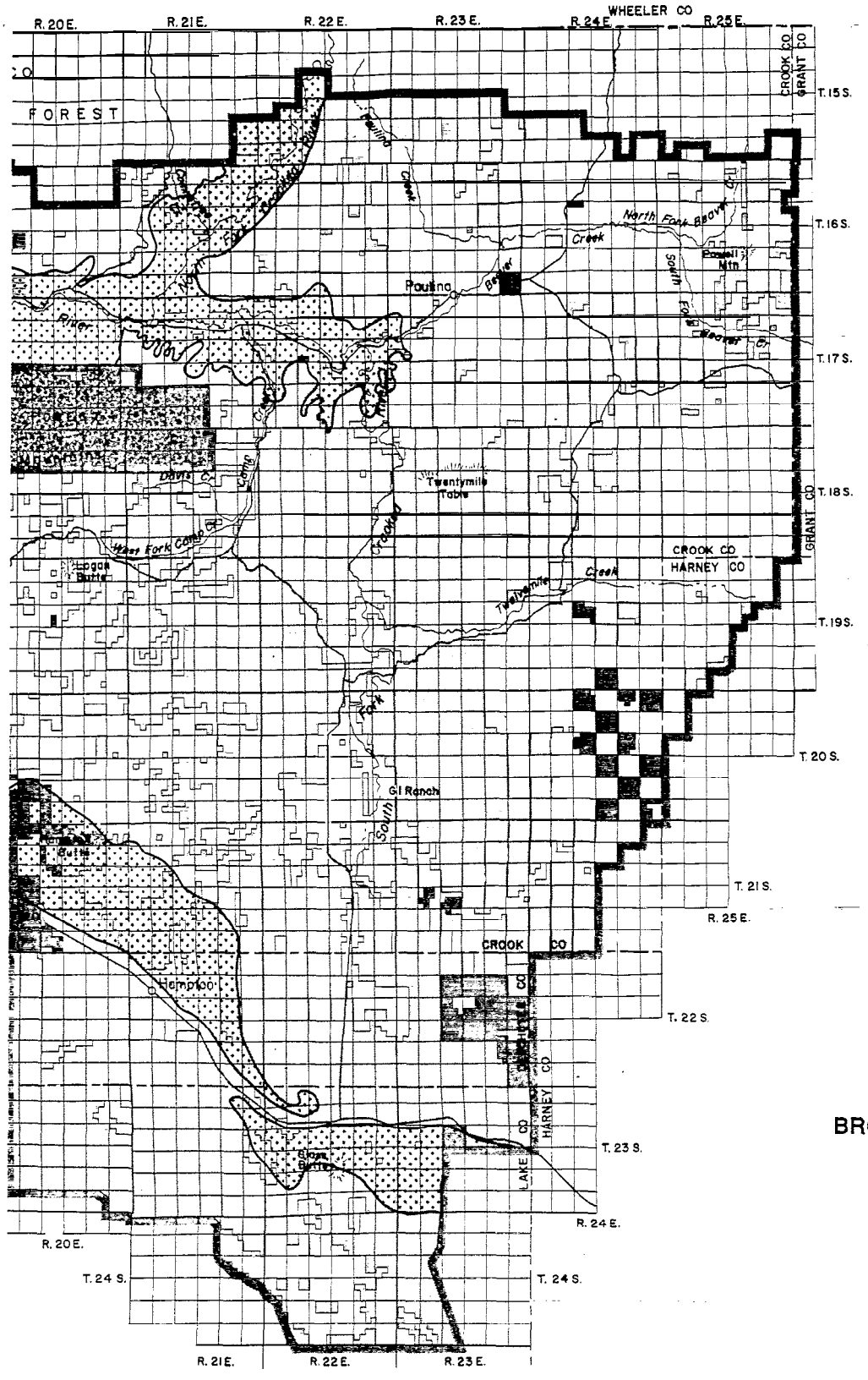

Areas Having High or Sensitive Visual Qualities

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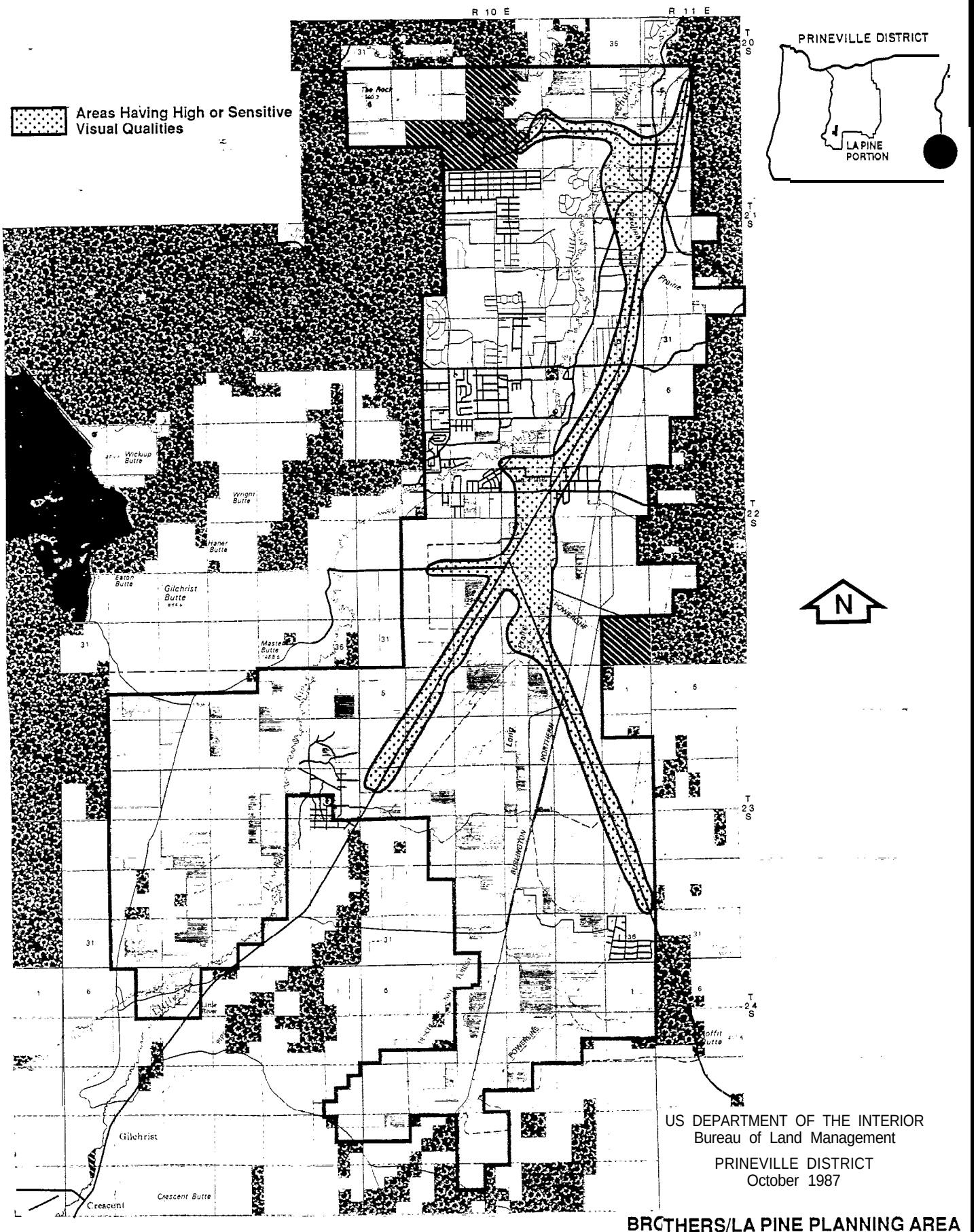
BROTHERS/LA PINE PLANNING AREA

MAP 22
Visual Resources
Brothers Portion



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BROTHERS/LA PINE PLANNING AREA

MAP 23
Visual Resources
La Pine Portion

Cultural and Paleontological Resources

The BLM identifies; evaluates and protects cultural resources and insures actions do not inadvertently harm or destroy federal or nonfederal cultural resources. Sites are evaluated to determine if they are eligible for addition to the National Register of Historic Places.

The BLM has identified 415 prehistoric sites in the Brothers/LaPine Planning Area. These include manufacturing and maintenance stations, temporary camps, quarries, milling stations, rock art, rock shelters and burial and resource exploitation sites.

The BLM has identified 108 historic sites. These include sites with a settlement and exploration/transportation theme, as well as townsites, public buildings, graves/cemeteries, and military, agricultural and industrial themes.

Detailed surveys prior to authorizing various actions have provided intensive survey information on 39,400 acres (3.5 percent) of public land in the planning area. Site densities range from 6 sites per 40 acres to one site per 640 acres.

There are no cultural sites on public land in the Brothers/LaPine Planning Area listed on the National Register of Historic Places. However, two sites near Bend, one near Glass Buttes and one near Post have been identified as potentially eligible for the National Register.

Relatively little is known about the overall extent or density of paleontological resources within the planning area. There are approximately 380,000 acres of geological formations in the planning area which may contain fossils (paleontological sites).

A literature search conducted in 1981 identified a total of 4 paleontological sites on or near public lands in the planning area.

Paleontological resources are considered prior to implementing land use actions as directed by the Federal Land Policy and Management Act (FCPMA) of 1976.

Early settlers entering the Crooked River Valley

Energy and Minerals

There are approximately 325 mining claims in the Brothers/LaPine Planning Area as of January 16, 1987. Known exploration for traditional locatable minerals is minimal. Some gold exploration is occurring. Mercury was produced in Crook County but production ceased many years ago. Exploration for traditional locatable minerals is expected to remain minimal during the next 20 years with minor economic production.

The east flank of the Cascades, including the LaPine area, is classified as potentially valuable for geothermal resources. Most of the public land is estimated to have low potential while much of the surrounding National Forest has moderate to high geothermal potential.

Glass Buttes, Twelvemile Table and Powell Butte areas are classified as potentially valuable for high temperature resources. Many shallow and several moderately deep temperature gradient holes were drilled in the Glass Buttes area in the late 1970s. This exploration showed a small area of geothermal potential but not large or hot enough to be of current commercial interest. Exploration has been minimal in the 1980s. Economic geothermal development will probably occur on National Forest lands but not on BLM managed lands in the next 10 to 15 years.

Nearly all of the Brothers portion is classified as prospectively valuable for oil and gas. Lands inside the North Fork, South Fork, Sand Hollow, Gerry Mountain, Cougar Well and Hampton Butte Wilderness Study Areas have been identified as Areas of Critical Mineral Potential for oil and gas. Much of the northeastern portion of the planning area has been leased for oil and gas under 10 year noncompetitive leases. This leasing has been in effect for 5 to 10 years. Currently, 16,480 acres leased for oil and gas exploration and development have no surface occupancy stipulations to protect high visual qualities and sensitive watershed conditions around Prineville Reservoir. An additional 48,140 acres have seasonal restrictions to protect sage grouse nesting areas and winter range for deer. Restrictions to protect visual qualities also exist on 300,000 acres near primary travel corridors and communities within the planning area. A total of 600 acres in the Horse Ridge Natural Area has been withdrawn from a mineral entry to protect the unique vegetative resources associated with this area.

Nearly all exploratory wells that have been drilled in the area have had shows of oil and/or gas. Exploration has virtually stopped in this area because of the severe downturn in the petroleum industry. It is projected that the next 10 to 15 years will see periodic exploration as in the past with one or two exploratory wells drilled when the petroleum industry recovers.

Bentonite is produced commercially by two operators along Camp Creek in Crook County. They operate on mining claims and, in general, produce a relatively low quality calcium bentonite. Production volumes are unknown. Unknown amounts of facing stone are produced in the area and diatomite was previously produced from the northwest portion of the area. Potential for these mineral products are good in several areas. It is expected that the next 10 to 15 years will see a continuation of bentonite production, some facing stone, and exploration for and testing of diatomite deposits. These operations are managed under the surface management of mining claims regulations.

Sand, gravel, clay and cinders in small to moderate amounts are sold or given to local governments as free use. These minerals are available for sale on a limited basis when a public need is demonstrated and the sales will not compete with private enterprise. Sales are always at appraised fair market value. No major construction projects are projected within the planning area in the next 10 to 15 years and therefore no large increase in demand is expected for these construction materials.

Within the planning area, there are approximately 131,000 acres of reserved federal mineral estate. The majority of this is in Crook County.

Semi-precious minerals are a true mineral resource, but are dealt with in the recreation section because their major use is in recreational rockhounding activities.

Lands

Utility and Transportation Corridors

There are eleven utility corridors extending through the planning area. Corridor designations are consistent with routes existing and proposed through adjacent National Forests and those identified by the Western Regional Corridor Study.

Communication Sites

There are four communication sites on public land within the planning area: Glass Butte, Hampton Butte, Cline Butte and Grizzly Mountain. Each has access and utility service.

Public Access

In general, legal access, either vehicular or by foot, is available to most public land in the Brothers/LaPine Planning Area. There are, however, some existing roads without access rights across private land which are important for administrative purposes and public use. The area of the Upper Crooked River presents some opportunities for acquisition of legal access.

Map 24 shows areas with high public value where public access is lacking in the Brothers portion. There are no needs for additional public access in LaPine portion.

Agricultural Use

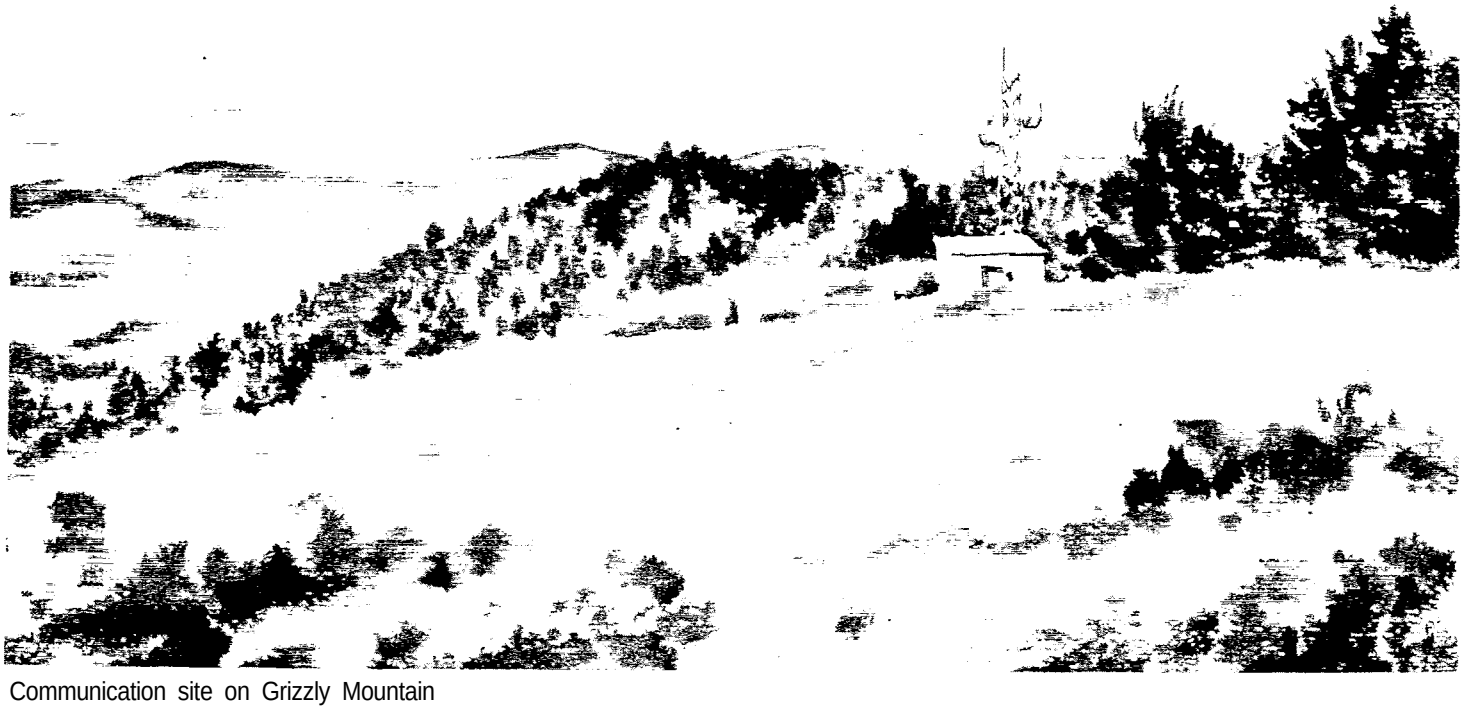
Currently there are 12 short-term permits in the planning area, authorizing the agricultural use of public land by adjacent private landowners. These are irregular parcels of public land situated adjacent to cultivated private land and incorporated into the agricultural fields as a result of physical boundaries or overlap of a sprinkler system. Most permits consist of small tracts averaging 5 to 10 acres. There are 60 acres of non-irrigated permits and 34 acres of irrigated permits.

Community Expansion

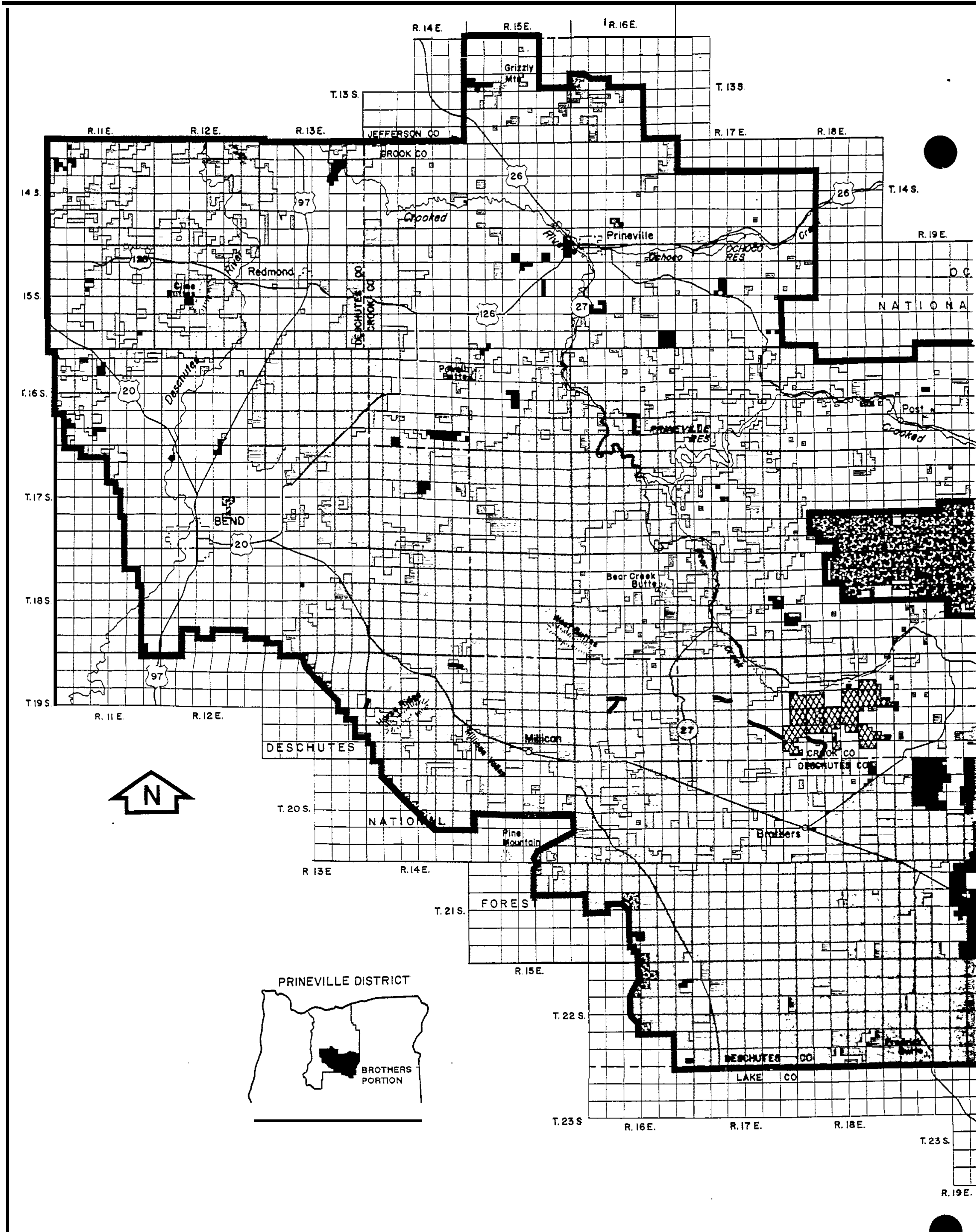
Public lands comprise a major portion of the property adjacent to the communities of LaPine and Redmond and to a lesser degree Bend and Prineville. Public lands have been made available for a variety of community expansion purposes in each of these communities.

Additional public lands adjacent to the communities of Bend, Redmond, Prineville and LaPine as shown on Maps 4 and 5 have been identified for possible transfer, exchange or sale to accommodate community expansion.

Currently there is one pending application under the Recreation and Public Purposes Act by the LaPine Special Sewer District for the transfer of 188 acres of public land.



Communication site on Grizzly Mountain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JEFFERSON CO
CROOK CO
R. 17 E.
R. 18 E.
T. 14 S.
26
97
Crooked
Prineville
River
R. 19 E.
126
Redmond
River
OCHOCO RES
Ochoco
DESCHUTES CO
CROOK CO
15 S.
27
NATIONAL
Powell Buttes
20
Deschutes
T. 16 S.
PRINEVILLE RES
Post
Crooked
T. 17 S.
BEND
20
Bear Creek Butte
T. 18 S.
Creek
97
T. 19 S.
R. 11 E.
R. 12 E.
Millican
27
CROOK CO
DESCHUTES CO
DESCHUTES
T. 20 S.
NATIONAL
Pine Mountain
Brothers
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FOREST
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PRINEVILLE DISTRICT
BROTHERS PORTION
DESCHUTES CO
LAKE CO
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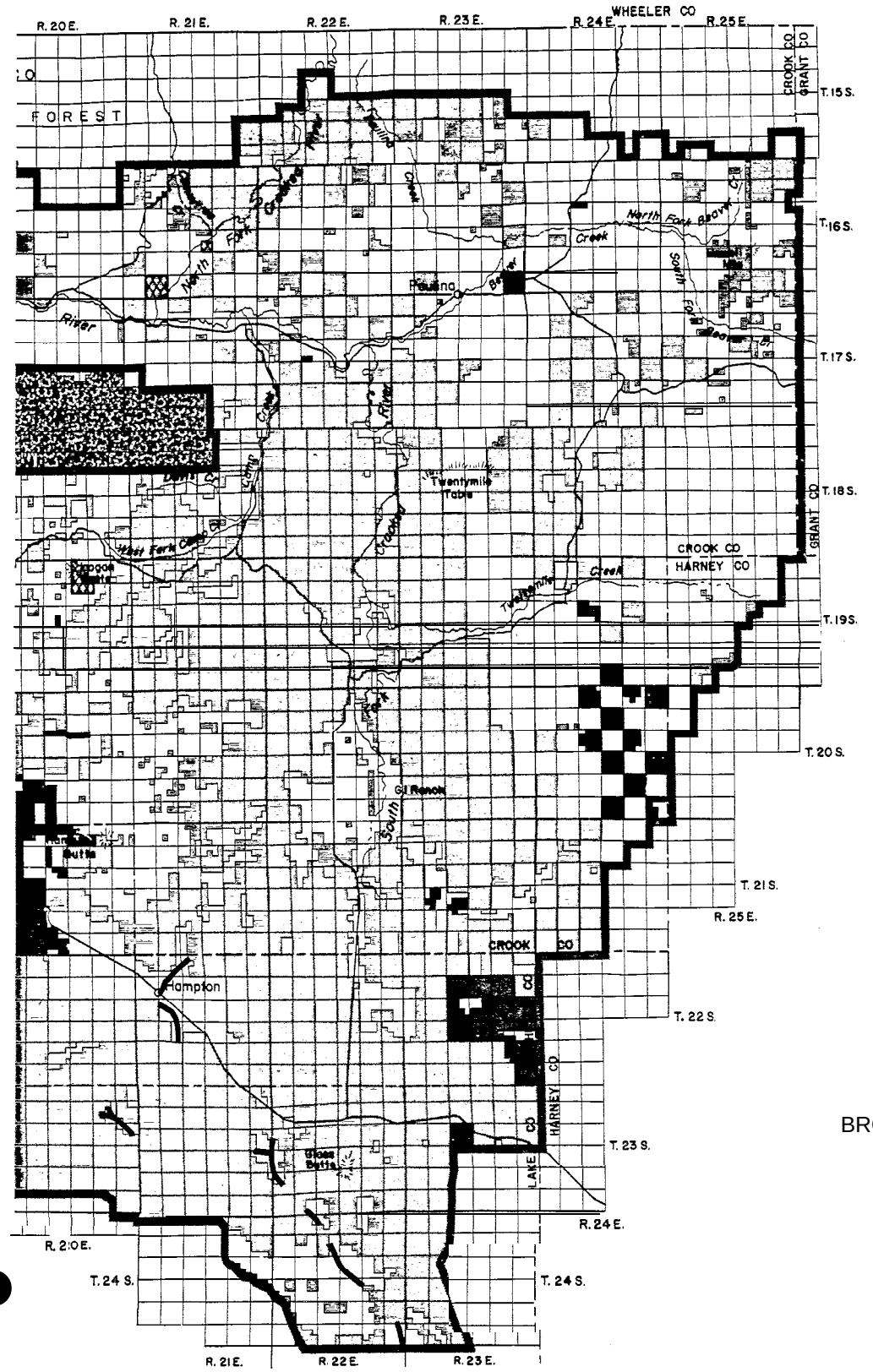

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PRINEVILLE DISTRICT
October 1987

BROTHERS/LA PINE PLANNING AREA

MAP 24
Public Access Needs
Brothers Portion

Socioeconomic Conditions

The economy of the planning area is dominated by tourism, agriculture and forest products production. The population of incorporated cities and counties in the planning area is shown in Table 31. Employment by county is shown in Table 32. Though there are no incorporated- communities in the LaPine portion, several recreationiretirement developments exist and are a source of substantial economic growth. This growth contributes to increasing land value and demand for use of the adjacent public lands.

Table 31. Population of Incorporated Cities and Counties, Brothers/LaPine Planning Area

Community	Population	County	Population
Prineville	5,455	Crook	13,500
Bend	18,575	Deschutes	65,400
Redmond	6,830	Harney	7,100
		Klamath	56,700
		Lake	7,300

Population growth in the Brothers portion has occurred principally around Bend which is a nationally known year-round recreation destination. Population change outside the area surrounding LaPine, Bend, Redmond and Prineville has been small.

The majority of the public land in the planning area is located in Crook and Deschutes Counties. Crook County's share of employment in manufacturing is higher than Deschutes County, reflecting wood products and other manufacturing employers located in the Prineville area. The nonmanufacturing share is higher in Deshutes County, reflecting the strong recreation-retirement and services orientation of its economy.

It has been estimated (USFS, 1986) that a one million board-foot change in harvest of species other than ponderosa pine will result in an employment change of four jobs in the wood products industry and two jobs in other local industries. With a current annual harvest of 7 to 9 million board feet, about 42 to 54 jobs are generated by timber harvest on BLM lands in the planning area. Of these, about 28 to 36 are in the wood products industry. This is less than one percent of the wood products industry employment in Crook and Deschutes counties.

BLM lands being used for agricultural purposes typically produce grain crops or grass hay if unirrigated, or alfalfa and pasture if irrigated. On a per-acre basis grain and grass hay produce an estimated net income above cash costs of $120 per crop year. Irrigated alfalfa and pasture land produces about $90 per crop year.

Recreation use of BLM lands affects the local economy primarily through expenditures by visitors. Approximately one-half of the estimated 248,000 visitors to the public lands in the planning area are by non-resident people. Between 35 and 100 full-time equivalent jobs may be generated by current recreation use.

Table 32. Resident Labor Force, Unemployment & Employment by County 1986 Annual Average

	Crook		Deschutes		Harney		Klamath		Lake		State of Oreg (thou.)	
Civilian Labor Force	6,550		34,830		4,000		24,850		4,190		1,347.0	
Unemployment	660		3,590		450		2,990		430		114.0	
Percent of Labor Force	10.1%		10.3%		11.3%		12.0%		10.3%		8.5%	
TOTAL Employment	5,890	100.0%	31,240	100.0%	3,550	100.0%	21,860	100.0%	3,760	100.0%	1,233.0	100
Nonagricultural Wage & Salary Employment												
	Crook		Deschutes		Harney		Klamath		Lake		State of Orego (thou.)	
Total Wage and Salary	4,270	72.5%	24,730	79.2%	2,180	61.4%	18,640	85.3%	2,350	62.5%	1,056.5	85.7%
Manufacturing	1,630	27.7%	4,550	14.6%	470	13.2%	4,150	19.0%	570	15.2%	196.7	16.0%
Lumber & Wd. Products	1,600	27.2%	3,020	9.7%	460	13.0%	3,340	15.3%	540	14.4%	63.9	5.2%
Nonmanufacturing	2,640	44.8%	20,180	64.6%	1,710	48.2%	14,490	66.3%	1,790	47.6%	859.8	69.7%
Government	830	14.1%	4,300	13.8%	720	20.3%	4,290	19.6%	930	24.7%	199.3	16.2%

Source: State of Oregon, Employment Division, Department of Human Resources, County Resident Labor Force Reports, March 1987.

Chapter 4. Environmental Consequences

Early day Prineville

Introduction

This chapter identifies, summarizes and compares environmental impacts projected to occur as a result of implementing one of the six alternatives. Impacts are discussed in relation to two time frames: short term--where impacts are expected to occur during project implementation (up to 10 years after approval of this plan) and long-term--impacts which would result beyond 10 years. Unless mentioned otherwise, the discussion of impacts would be the same for both the short- and long-term.

Analysis indicates that no impacts of regional significance would result from implementing any of the alternatives. The environmental consequences are significant to the immediate area of implementation, but not beyond.

Analysis indicates there would be no significant impact to cultural or paleontological resources, lands, special status species or riparian habitat. They will not be considered further.

Impacts from sale or lease of public lands in the LaPine core area as well as adjacent to Bend, Redmond and Prineville are discussed in the socioeconomics section.

Since this document merely determines eligibility of various river segments for further study as possible additions to the National Wild and Scenic Rivers System, no impacts would result. The suitability of these river segments as components of the National Wild and Scenic Rivers System will be analyzed in the subsequent study phase. Consequently, there is no further analysis of potential wild and scenic rivers.

General Methodology

Methods used to analyze impacts are described by Haug (1984) and Haug et al. (1984). The methodology results in a systematic and objective analysis that identifies the suspected causes of environmental' impacts. Land management actions that cause changes are called change agents. Change agents produce environmental impacts, which are changes in certain resource values known as indicators. Environmental impacts are described in terms of increases or decreases of certain units of measurement for an indicator.

Not all impacts were quantifiable because of the lack of quantifiable data. An interdisciplinary team of resource specialists used professional judgement to estimate environmental consequences where specific data was lacking.

The following assumptions have been made in this chapter:

1) Funding and personnel would be sufficient to implement any alternative described;

2) Monitoring studies would be completed as indicated and adjustments or revisions made as appropriate;

3) Management common to all alternatives set forth in Chapter 2 would be followed: and

4) Appropriate maintenance would be carried out to maintain the functional capability of all developments.

Impacts to Air Quality

Impacts to air quality would result from fire management practices, however, they would be similar under all alternatives except Alternative A as shown in Table 33. Acres of rangelands burned would vary from 2,100 acres under Alternative A to 2,500 acres under Alternative F on an annual basis. Also 50 to 200 acres of logging debris and slash would be burned following timber harvest to reduce wildfire hazard along access roads. Activity fuel treatment would decrease to fewer than 36 acres following salvage of insect damaged timber in about eight years.

Burning would range from 590 tons/year under Alternative F to 2,360 tons/year under Alternative A. The level of burning would then drop to 500 tons or less after timber salvage is complete. Treatment of fuel wood sites would remain constant.

Smoke produced from burning under any of the alternatives would be less than the smoke produced from similar burning during the baseline year of 1978 and as a result would be in conformance with air quality standards.

Table 33. Impacts to Air Quality from Average Annual Burning, Brothers/LaPine Planning Area

	1978 Baseline[1]		Alt. A Commodity Production		Alt. B Commodities w/Natural Values		Alt. C Existing Management		Alt. D Preferred Alternative		Alt. E Natural Values w/Commodities		Alt. F Natural Values	
	Acres	Tons/ Acre Consumed	Acres	Tons/ Acre Consumed	Acres	Tons/ Acre Consumed	Acres	Tons/ Acre Consumed	Acres	Tons/ Acre Consumed	Acres	Tons/ Acre Consumed	Acres	Tons/ Acre Consumed
Slash Burning	236	2,780	200	2,360	150	1,770	100	1,180	100	1,180	50	590	50	590
Prescribed Burning	1,250	3,820	2,100	3,975	2,100	3,975	2,100	3,975	2,400	4,481	2,400	4,481	2,500	4,650
TOTAL Tons of Fuel		6,600		6,335		5,745		5,150		5,661		5,071		5,240

[1]The baseline year fuel load was calculated using 295 tons/acre which was based on calculations made by the Ochoco National Forest.
A project being developed in conjunction with the Smoke Emissions Research Group at the Pacific Northwest Research Station to establish emission factors for rangeland fuels would require the burning of an additional 800 acres of sagebrush/grass and junior over a 2-year period.

Records on burning during 1978, the baseline period, are incomplete. It is estimated that 236 acres of commercial activity fuels, 100 acres of scattered fuelwood removal sites, 150 acres of grassland and 1,000 acres of chained juniper were burned durning the baseline period. Based on fuel loads from similar areas and treatments on the Ochoco National Forest, 6,600 tons of fuel were consumed in the planning area during the baseline period.

Impacts to Soil

Activities which would occur under each alternative and would impact soil are summarized in Table 34. Impacts to soil result from changes in vegetative cover and actions which adversely alter the physical, chemical, or biological properties.

There would be short- and long-term impacts on soil in the LaPine area as a result of adversely altering soil properties by timber harvesting under Alternatives A, B, C, D and E. The major impact would be soil compaction created by ground-based harvesting equipment. Compaction is directly related to a reduction in tree growth (Froelich, H.A., D.E. Aulerich, and R. Curtis, 1981, and Cochran, P.H. and T. Brock, 1985).

Livestock grazing in the LaPine portion would have a slight adverse impact on soil during the period that increased livestock grazing would occur. This would result from compaction and removal of vegetation under alternatives A, B and D. There would be no change under Alternative C. Alternatives E and F would have a beneficial impact on soil due to the reduction or elimination of livestock grazing in the LaPine portion.

Erosion hazard would decrease in Dagus Lake and Camp Creek Community Allotments under Alternatives D and F where 210 additional AUMs of forage would be allocated to watershed and wildlife as a result of removing wild horses from the area. Erosion hazard would increase slightly under Alternative E where greater numbers of horses would roam. There would be no change with Alternatives A. B or C.

Under Alternatives A and C, there would be no change in impacts to soil due to wildfire. Under Alternatives B, D and E, short-term impacts would be greater as a result of increases in average fire size. In the short-term, soils would be more susceptible to erosion; however, long-term increased vegetative cover would improve overall soil condition after the erosion hazard phase passed. Under Alternative F, short-term soil erosion potential would be greater as a result of greater potential for high intensity wildfires while long-term soil erosion would decrease.

ORV use would adversely impact soil under Alternatives A and B due to the larger areas in which ORV activities would be allowed and the resulting soil disturbance. No change would occur under Alternative C. Low beneficial impacts would occur under Alternative D and E due to the restrictions on ORV use in sensitive areas. Alternative F would have the greatest beneficial effect on soil due to restrictions placed on ORV activities.

Table 34. Long-Term Impacts to Soil and Water,[1] Brothers/LaPine Planning Area

	Alt. A Commodity Production	Aft. B Commodity w/Natural Values	Alt. C Existing Management	Alt. D Preferred Alternative	Alt. E Natural Values w/Commodities	Alt. F Natural Val
Forestry practices						
Spur road construction	-L	-L	NC	-L	- - L	+L
Timber harvest	-L	-L	NC	-L	-L	+L
Livestock grazing						
Forage allocation	-L	-L	NC	-L	+L	+M
Range developments	+L	+L	NC	+L	+L	
Wild horses						
Forage allocation	NC	NC	NC	+L	NC	-L
Fire	NC	+L	NC	+L	+L	+L
Recreation						
ORV use	-L	-L	NC	+L	+L	+L
Rockhounding	-L	-L	NC	+L	+L	+L
Minerals Exploration and Development	-L	-L	NC	+L	+L	+L
Overall	-L	-L	NC	+L	+L	+L

1/ + Enhanced H High
- Degraded M Moderate
NC No Change L Low

Impacts to soil would occur under Alternatives A and B as a result of oil and gas exploration and development that could occur on soils with high erosion hazard around Prineville Reservoir. The construction of a drill pad and necessary access road for one drill site would be expected. This would increase soil erosion on a 3 to 5 acre area.

Under Alternatives C, D and E, the size of areas with protective restrictions would remain as they are. Under Alternative F the size of the areas with protective stipulations would increase. As a result, the greatest benefits to soil from minerals alternative would occur under Alternative F.

Impacts to Water

Impacts to water generally result from changes in vegetative cover and its effect on soil stability in relation to erosion hazard and the potential for downstream sedimentation. Table 34 summarizes long-term soil and water impacts.

Forestland harvest in the LaPine portion would have little effect on water under Alternatives A, B, C, D or E. Soil compaction from logging operations including landings and loading operations would occur. Some erosion could result from heavy rain or snow melt, however, the short-term impact to water quality would not be significant. There would be no effect under Alternative F.

Livestock grazing in the LaPine portion would have a slight short-term negative impact due to compaction and vegetation removal under Alternatives A, B and D. Generally, these impacts would occur only where timber had been removed and livestock grazing subsequently allowed. There would be no change under Alternative C. There would be a beneficial impact under Alternatives E and F due to reduction in vegetation being removed by livestock. Overall, water quality is expected to remain about the same or improve slightly under all alternatives.

Removal of wild horses under Alternatives A, D and F would have a positive impact on water quality especially in the riparian areas of the horses range. Increasing horse numbers would decrease water quality throughout their range. The horses are year-round residents and therefore difficult to impossible to manage. Therefore, they impact the riparian/stream areas at critical vegetative growth stages which is detrimental to water quality and quantity. Alternative B would improve water quality by restricting horses from the South Fork riparian pasture. Alternative C would have no change in effect on water quality from current conditions. Alternative E would have a significant negative impact on water quality and quantity due to increased numbers and subsequent impacts as described above.

There would be no change in water quality or quantity due to wildfire under Alternatives A and C. Under Alternatives B, D and E, there would be a slight increase in sedimentation resulting from increased erosion in burned areas. In the long-term, increased vegetative cover would improve overall water quality by reduci

sedimentation and runoff. Under Alternative F, impacts on wafer quality may become more adverse over time due to fuel buildup and resulting fire hazard increase.

ORV use under Alternative A'would have the greatest adverse impact on water, followed by Alternative B as a result of large areas, some with sensitive watersheds, being available for use. There would be no change under Alternative C. Alternatives D and E would have a beneficial impact on water due to restrictions placed on ORV use in sensitive areas, The greatest beneficial impact on water would occur under Alternative F where ORV use would be highly restricted.

Impacts to water as a result of oil and gas exploration and development would occur under Alternatives A and B due to surface disturbing activities that would occur within sensitive watersheds such as Prineville Reservoir. There would be no change under Alternatives C, D and E. Alternative F would have the greatest beneficial impact on water due to increases in the size of areas with protective stipulations.

Impacts to Vegetation

Impacts to vegetation result from changes in vegetation type or ecological status as a result of damage by fire or removal through grazing or timber harvest.

Impacts to vegetation would be the greatest in the LaPine portion due to timber harvesting in response to the Mountain Pine Beetle infestation. All areas where timber harvesting is proposed would change from late seral and PNC status to early and mid-seral status in the short-term. A predominantly lodgepole vegetative community would be changed to a predominantly grass-bitterbrush community for a period of approximately 20 years until plant succession would once again move toward a predominantly lodgepole community. These impacts would be the greatest under Alternatives A, B, C, D and E, respectively. Alternative F would allow natural plant succession to occur as beetle-infested trees would continue to die and new seedlings would become established. This would slow successional stages by up to 10 years.

Impacts to vegetation in the LaPine portion from grazing would be greatest under Alternatives A, B, and D due to increases in levels of livestock grazing in the short-term. There would be no change with Alternative C. Impacts to vegetation under Alternative E would decrease as a result of reductions in levels of livestock grazing. No vegetation Would be utilized by livestock under Alternative F as a result of removing livestock grazing from the public lands in the LaPine portion.

Impacts to vegetation would occur as a result of wildfire managememt. Ecological status would move toward PNC more rapidly (at least one condition class) as a result of using fire as a natural tool to manage vegetation. Alternatives A and C would do little to change ecological status due to the larger areas receiving aggressive fire suppression and the highly restricted conditions under which conditional suppression would be allowed to occur. Alternatives B and D would move vegetative communities toward PNC most rapidly due to the increased acreages on which conditional suppression would be applied and the parameters under which wildfire would be allowed to burn. Alternatives E and F would also move ecological status toward PNC by increasing the number of acres on which conditional suppression would be applied. However, the expanded parameters under which wildfire would be allowed to burn could move ecological status away from PNC in some areas if frequent high intensity fires were to occur.

Ecological status would move toward PNC more rapidly in the Dagus Lake and Camp Creek community allotments in the Brothers portion of the planning area under Alternatives D and F as a result of removing wild horses. This would be especially true in the riparian areas of the South Fork of the Crooked River. Under Alternatives A, B and C, overall ecological status would remain essentially unchanged. Under Alternative E ecological status would decrease slightly.

Timber harvesting in LaPine

Impacts to Forestland

Impacts to Commercial Forestland

Impacts to forestland depend on acres harvested and the constraints placed on harvest levels and methods. Table 11 in Chapter 2 displayed harvest levels by alternative.

At the end of the harvest period, forestland practices in the LaPine portion would shift from harvest of timber to the utilization of other forest products such as posts, poles and firewood. Commercial forestland harvest would not be expected to resume on public lands in the LaPine portion for approximately 50 years.

Under Alternatives A, B, C and D harvest of dead and dying lodgepole trees in the LaPine portion would reduce the high fire hazard. Fire hazard would be greater under Alternatives E and F due to high accumulation of fuel.

Overall impacts to fire management are summarized in Table 33.

Impacts to Noncommercial Woodland

Impacts to woodlands depend on acres harvested and the constraints placed on harvest.

The harvest of woodland products would generally (approximately 80 percent) be confined to areas that are potential natural grass communities which juniper has invaded. In these areas, the harvest of juniper trees would move overall ecological status from early/mid seral status to mid/late seral status. Some harvesting of juniper (approximately 20 percent) would occur near the population centers of Bend, Redmond and Prineville from sites that are potential natural juniper communities. In these areas overall ecological status would move away from potential natural juniper community toward early/mid seral status.

Impacts to Livestock Grazing

Impacts to livestock grazing result from changes in the amount of forage available and allocated to livestock. Table 12 in Chapter 2 lists short-and long-term forage allocations by alternative for livestock grazing in the LaPine portion.

Removal of the beetle-infested lodgepole pine overstory would stimulate a substantial increase in grass production for a period of up to 20 years while tree seedlings become re-established.

Increases in forage production would occur under all alternatives, except Alternative F, as a result of timber harvest in LaPine. Under Alternative F, all grazing would be removed from the public lands through exclusion fencing. Alternatives C and E, although increasing the amount of forage production as a result of timber harvest, would not allocate any of the additional forage for grazing. Alternatives A, B and D would increase livestock grazing for approximately a 20-year period by increasing the amount of forage available for livestock, if demand developed for the additional forage.

In the long-term, allocated AUMs would return to the present level as a result of lodgepole pine regrowth.

Illustration 1 shows the relationship of timber harvest and subsequent grass production which could be made available to livestock.

Under Alternative A, an increase of approximately 210 AUMs of forage would be available to livestock in the Camp Creek Community Allotment as a result of removing wild horses. No change would result under Alternatives C, D and F. Under Alternative B, livestock in the Dagus Lake Allotment would not be granted 165 AUMs of a 381 AUM increase in currently available but unallocated forage. Increased numbers of horses in Alternative E would cause a 421 AUM (46% of active preference) reduction in forage currently allocated to livestock in the Camp Creek Community Allotment, and a 248 AUM (52% of active preference) reduction in Dagus Lake Allotment.

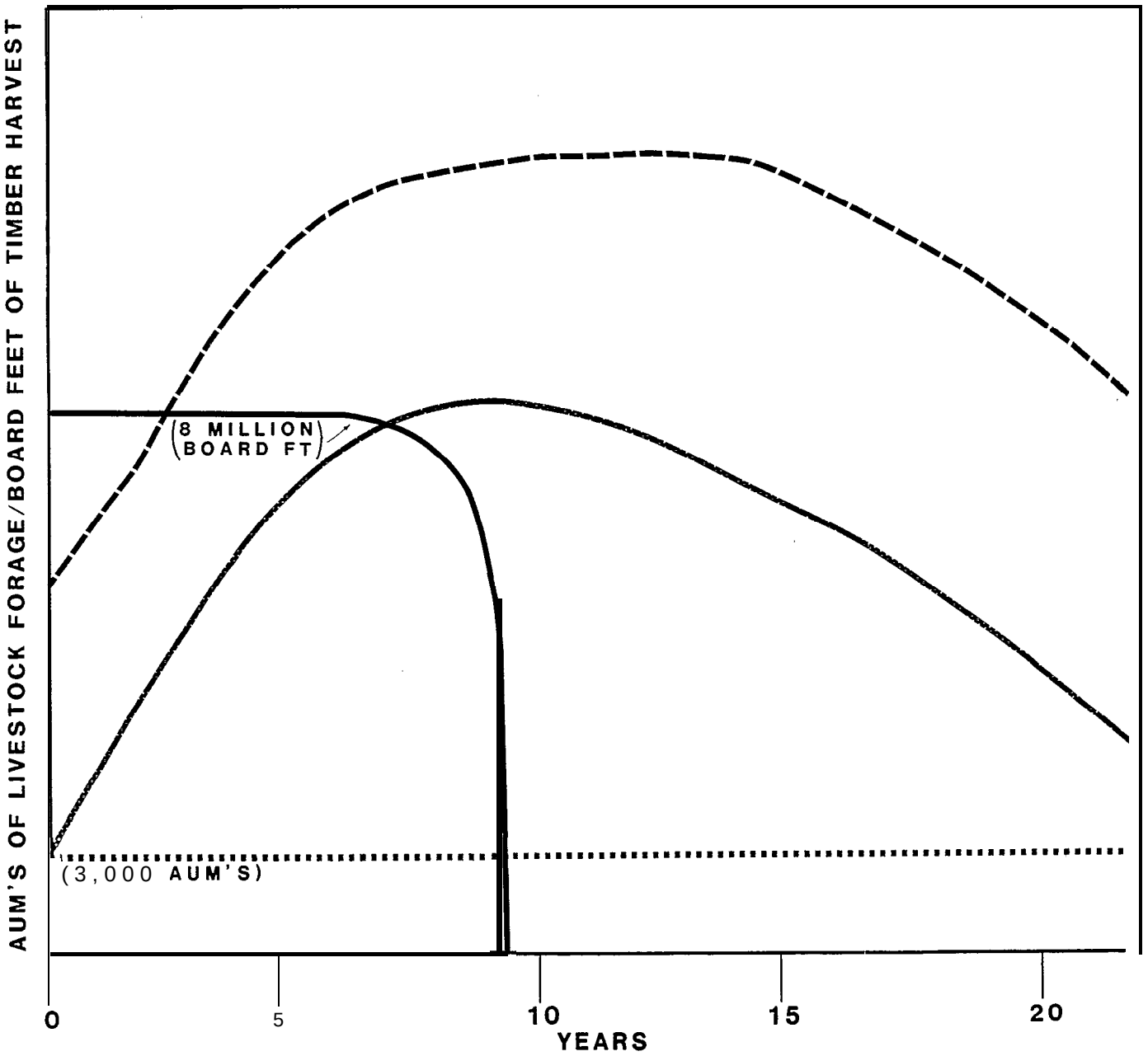
Impacts to Wild Horses

Impacts to wild horses result from changes in the amount of land available for them to roam and adjustments in herd numbers. Alternative A, D and F would negatively impact wild horses through total removal and placement through the Adopt-A-Horse Program.

Wild horses near Sulphur Butte

ILLUSTRATION 1

Relationship of Timber Harvest Levels to Forage Production



---- FORAGE PRODUCTION

FORAGE AVAILABLE TO LIVESTOCK

ANNUAL TIMBER HARVEST LEVEL

CURRENT (1987) LEVEL OF LIVESTOCK FORAGE ALLOCATED

Management of wild horses under Alternative B would enhance horse quality by introduction of new stallions approximately every six years. The free-roaming nature of the wild horses would continue to be inhibited by closure of pasture fence gates that restrict them to approximately 5,000 acres from April through November. They would be free to roam an area of 25,000 acres from December to March. They would be permanently restricted from 2,000 acres of their historical herd range along the South Fork of the Crooked River riparian area.

Population numbers under Alternative C would be unpredictable with horse numbers being controlled by natural events. In typical herds, horse numbers increase up to 20 percent per year although the present population has shown only a slight increase in the last 10 years. Horse quality would decrease over time due to inbreeding. The free-roaming nature of the wild horses would be greatly inhibited by seasonal gate closures in the Camp Creek Community Allotment which would restrict them to approximately 5,000 acres from April to November. They would roam 17,000 acres from December to March when pasture gates are open in the allotment.

Management of 50 wild horses under Alternative E would enhance the quality of horses by occasional introduction of new stallions. Removal of 4.5 miles of fence would enhance the free-roaming nature of the wild horses, although gate closures from April to November would decrease opportunities for wild horses to roam freely by restricting them to approximately 10,000 acres. Open gates from December to March would allow free movement through the entire herd area of 25,000 acres. Horses would be permanently restricted from 2,000 acres of their historical herd range along the South Fork of the Crooked River. Table 14 in Chapter 2, lists the allotments horses would be allowed to use under Alternatives B, C and E.

Overall, wild horses would be adversely affected under Alternatives A, D and F. There would be no change under Alternative C. Beneficial impacts would occur under Alternative B with the greatest benefits resulting under Alternative E.

Impacts to Wildlife

Upland Habitat

Wildlife species and their-habitats in the planning area are influenced primarily by livestock grazing and timber harvest. These practices impact wildlife habitat through changes in vegetative composition and structure which in turn affect the numbers and types of species that inhabit that plant community. Forestland harvesting methods also impact habitat diversity through edge effect between habitats. Edges between habitats are generally higher in plant diversity and richer in wildlife species than the adjacent plant communities or successional stages. Reduction in edge effect influences all life forms depending on the habitat that is reduced.

Alternative A would have the greatest adverse impact to wildlife due to increases in timber harvest and livestock grazing. There would be an increase in forage production available to wildlife through timber removal but a decrease in cover, There would be a decline in migrating mule deer herds from a reduction in thermal and hiding cover. Habitat diversity associated with uneven-aged timber would be reduced with more acres in an even-aged condition.

Wildlife tree and snag retention for cavity nesting species such as woodpeckers, small owls, and flying squirrels would not maintain viable population levels.

Timber harvest levels under Alternative A would have a moderate adverse impact on habitat diversity and cavity nesting species. Lesser adverse impacts to sage grouse and wintering mule deer would also occur as a result of removing the seasonal restrictions on oil and gas exploration development in sage grouse strutting areas and deer winter ranges.

Alternatives B and C would have less impact on habitat diversity and cavity nesting species than Alternative A but would still be an adverse impact. Migrating mule deer thermal and hiding cover would be reduced. There would be a decrease in edge effect from Alternative C with changes in timber harvest practices. Wildlife forage increases would be available under Alternative B but since big game populations are near the present management objective numbers set by ODFW this would probably not be utilized. There would be no change under Alternative C. There would be an additional 210 AUMs available for wildlife in the Camp Creek Community Allotment under Alternatives D and F, due to total removal of wild horses. Alternative B would also increase ground cover available for dependent species.

Alternatives D and E would have the greatest beneficial impact on wildlife. Timber production would be managed to maintain optimum diversity of forage and cover in areas outside of major deer migration corridors. Wildlife tree and snag retention would be managed at 70 percent of optimum. Intensive grazing management would provide carry-over cover for ground nesting and dwelling species and should reduce competition between big game and livestock for shrub utilization. Under Alternative E a slight decrease in livestock grazing would occur. However, changes in effects on wildlife habitat would be negligible.

Alternative F would eliminate timber harvest and livestock grazing in the LaPine portion. Wildlife tree and snag retention would be managed for full potential. Diversity and edge effect would decrease over time as timber sale areas become restocked with lodgepole pine. Understory vegetation under this alternative would be less than Alternatives B, C and D under mature timber canopies. Thermal and hiding cover for migrating mule deer would increase and improve.

Overall impacts to wildlife habitat are summarized in Table 35.

Table 35. Impacts to Wildlife Habitat,[1] LaPine Portion, Brothers/LaPine Planning Area

	Alt. A Commodity Production	Alt. B Commodities w/Natural Values	Alt. C Existing Management	Alt. D Preferred Alternative	Alt. E Natural Values w/Commodities	Alt. F Natural Values
Forage Production	+L	+L	NC	NC	-L	-L
Cover/Forage Ration	-M	-L	NC	+L	+L	-L
Migration Cover	-M	-L	NC	+L	+L	-L
Habitat Diversity	-L	NC	NC	+L	+L	-L
Snag retention	-H	NC	NC	+L	+L	+L
Understory vegetation	+M	+L	NC	NC	-L	NC

[1] + enhanced H high
- degraded M medium
NC no change L low

Impacts to Recreation

Recreation use levels are affected by the acquisition of easements to inaccessible tracts of public land and restrictions on off-road vehicle (ORV) use for hunting, rockhounding and other recreation purposes. Table 36 summarizes impacts to recreation.

Increased land acquisitions and minimum restrictions on ORV use would increase overall use levels under Alternatives A, B and D. There would be no change under Alternative C. Non-motorized recreation use, however, would decrease slightly under these alternatives due to large areas where off-road vehicles would be used as part of the recreation activity and the conflicts between recreationists who utilize motorized vehicles and those that do not. Overall recreation use levels would decrease under Alternatives E and F due to limited public land acquisitions and restrictions on off-road vehicle use on large acreages. Nonmotorized recreation use would increase under these alternatives.

Sightseeing would be expected to increase slightly under Alternatives B and E as a result of having a designated wild horse herd in the planning area. The removal of the wild horses under Alternatives A, D and F would have no significant effect on current recreation use levels. There would be no change under Alternative C.

Deer hunters near LaPine

Table 36. Impacts to Recreation,[1] Brothers/LaPine Planning Area

	Alt. A Commodity Production	Alt. B Commodities w/Natural Values	Alt. C Existing Management	Alt. D Preferred Alternative	Alt. E Natural Values w/Commodities	Alt. F Natural Values
Millican Valley ORV area	+M	+L	NC	+L	-L	-H
Motorized recreation use	+M	+L	NC	+L	-L	-M
Nonmotorized recreation	-M	-L	NC	+L	+L	+M
Rockhounding	+H	+H	NC	+M	-L	-H
Overall recreation use levels	+M	+L	NC	+L	-L	-L
Overall recreation opportunities	+M	+L	NC	+L	-L	-L

[1] + enhanced, - degraded, NC no change; H high, M medium, L low

Off-Road Vehicle Use

Table 16 in Chapter 2 lists acres to be limited or closed to ORV use.

Beneficial impacts to ORV use would occur under Alternatives A and B as a result of smaller acreages being limited or closed to ORV use. ORV use levels and cross-country riding opportunities would be reduced by restrictions or exclusion on more than 209,000 acres under Alternative C; 277,000 acres under Alternative D; and 289,000 acres under Alternative E. The greatest adverse impact to ORV use would occur under Alternative F due to restrictions or exclusion on more than 317,000 acres.

Millican Valley ORV Area

Casual and organized ORV opportunities would be enhanced under Alternatives A, B and D due to increased acreage and seasons of use. Use levels would also be expected to increase slightly under these alternatives. No change in ORV use levels or opportunities would occur under Alternative C.

Alternatives E and F would reduce ORV use levels and opportunities in the Millican Valley by further restricting cross-country riding opportunities and season of use. Under Alternative F, organized ORV events would be eliminated. Use would be displaced to other areas in the region where ORV riding opportunities exist.

Motorcycle racers at Millican Valley

Rockhounding

Under Alternatives A, B and D opportunities for rockhounding would be enhanced by managing and exposing new beds, improving public access, providing public information and more thoroughly signing digging areas. Under Alternative D, opportunities for recreational rockhounding-would be enhanced through the withdrawal of 13,000 acres in the Congleton Hollow/Liggett Table area for recreational rockhounding. The proposed mineral withdrawal would be submitted for approval by the Secretary of the Interior.

There would be no change to rockhounding under Alternative C. Alternatives E and F would lead to a decline in rockhounding due to the smaller number of areas that would be available. No pit development or road improvement would occur; only hand equipment would be allowed.

Overall, Alternatives A, B, and D would result in the greatest increase in overall recreation use, due to increased public land acquisitions and limited restrictions on ORV use. There would be no change under Alternative C. Alternatives E and F would reduce overall recreation use levels due to restrictions on ORV use. Although nonmotorized recreation use would slightly decrease under alternatives A and B, many primitive recreation opportunities would still exist.

Hikers in the South Fork of the Crooked River Canyon

Impacts to Areas of Critical Environmental Concern (ACEC)

Impacts to the special values associated with each ACEC are dependent on the number of acres designated as ACEC and the resulting protection. Table 37 summarizes impacts to each proposed ACEC under each alternative.

Five areas totalling 1,560 acres would be designated under Alternative A. Alternative B would provide designation for 9 areas totalling 35,556 acres.

Under Alternative C, no new areas would be designated as ACECs; however, the existing Horse Ridge Research Natural Area would be designated as an ACEC.

The greatest protection to special values and the greatest number of acres designated as ACECs would occur under Alternative F, with 12 ACECs and 42,329 acres designated. The same number of ACECs would be designated under both Alternatives D and E although the total acreage would be somewhat less--36,916~-for both, and the level of protection (constraints on uses not compatible with special values) would be less than under Alternative F.

Impacts to Visual Resources

Visual resources are impacted by surface disturbing activities that change the character of the landscape.

Visual quality would be adversely affected under Alternatives A and B due to the removal of no surface occupancy stipulations for oil and gas exploration and development. In addition, areas having high or sensitive visual qualities would have few restrictions on ORV use and timber harvest activities in the LaPine portion. Impacts due to the removal of no surface occupancy stip'ulations would occur around Prineville Reservoir where one exploratory well would likely be drilled in the next 10 to 15 years. This drilling would require an access road and drill pad that would likely be visible from the surface of Prineville Reservoir. There would be no change under Alternative C.

Overall visual quality would be enhanced under Alternatives D, E and F, however, Alternative F would provide the greatest protection to visual quality followed by Alternatives D and E. This is due to additional restrictions on ORV use, continuation of the no surface occupancy stipulation around Prineville Reservoir and utilization of timber management activities in the LaPine portion. This would maintain or enhance the existing character of identified areas possessing high or sensitive visual qualities.

Table 37. Impacts to Special Resource Values[1] and Acres Designated as ACECs by Alternative, Brothers/LaPine Planning Area

Area Name	Alt. A Commodity Production I/A[2]	Alt. B Commodities w/Natural Values I/A	Alt. C Existing Management I/A	Alt. D Preferred Alternative I/A	Alt. E Natural Values w/Commodities I/A	Alt. F Natural Values I/A
Badlands	NC/0	+L/16,860	NC/0	+M/16,860	+M/16,860	+H/18,660
Benjamin (RNA)	–L/0	–L/0	NC/0	+M/640	+M/640	+H/640
Forest Creeks (RNA)	–L/0	NC/0	NC/0	+L/405	+L/405	+L/405
Horse Ridge (RNA)[3]	NC/600	NC/600	NC/600	NC/600	NC/600	NC/600
Logan Butte	–L/0	NC/802	NC/0	+L/802	+L/802	+M/802
Lower Crooked River	–L/0	NC/2,830	NC/0	+M/2,830	+M/2,830	+H/2,830
North Fork Crooked River	+L/320[4]	NC/7,142	NC/0	+M/6,737	+M/6,737	+H/10,350
Peck's Milkvetch	+L/160[4]	+M/3,902	NC/0	+H/3,902	+H/3,902	+H/3,902
Powell Butte (RNA)	–L/0	–L/0	NC/0	+M/520	+M/520	+H/520
South Fork Crooked River	NC/0	+L/2,940	NC/0	+M/3,140	+M/3,140	+H/3,140
Wagon Road	+L/160	+L/160	NC/0	+M/160	+M/160	+H/160
Winter Roost	+M/320	+M/320	NC/0	+M/320	+M/320	+H/320

1/ + enhanced H high
– degraded M moderate
NC no change L low
2/ I/A = Impact/Acres designated
3/ Horse Ridge is an existing RNA/NNL
4/ Special resources are enhanced on small, scaled-down area only

Logan Butte

Impacts to Energy and Minerals

Mineral exploration and development in the planning area, during the 1 O-l 5 year life of the plan would not be expected to vary significantly, under any alternative, from the scenarios projected in Chapter 3.

Alternatives A and B would significantly benefit oil and gas exploration and development with removal of the no surface occupancy, seasonal and other restrictions. This would allow exploration and development to occur on 16,480 acres of land around Prineville Reservoir which has moderate potential for oil and gas. Approximately 90,000 acres of land with high potential and 210,000 acres of land with moderate potential for oil and gas located in areas with high or sensitive visual quality would also be available for exploration and development without special restrictions.

There would be no change in impacts to traditional locatable minerals or to leasable or salable minerals under Alternatives C or D. The withdrawal of approximately 13,000 acres of the Congleton Hollow Liggett Table rockhounding area under Alternative D, if approved by the Secretary of the Interior, would preclude commercial entry and reserve those deposits for recreational rockhounding.

Alternative E would adversely impact oil and gas exploration and development by not allowing any waiver of protective stipulations for visual, ACEC, wildlife and watershed values even if impacts could be mitigated. Impacts under Alternative F would be the same as Alternative E except that under Alternative F, 42,329 acres would be withdrawn from entry under the mining laws and preclude leasing under the mineral leasing laws due to ACEC designation.

Impacts to **Socioeconomics**

Socioeconomic factors have the greatest potential of being affected through changes in land tenure and timber harvest.

Depending on the alternative, timber harvest could range from 0.5 million board feet to 18 million board feet per year. The effect on employment in Deschutes and Crook counties could range from a decrease of 51 jobs under Alternative F to an increase of 66 jobs under Alternative, A. This would be a small impact in comparison to the present size of employment in the two counties. None of the alternatives would maintain the current level of wood products industry employment in the long-term.

In addition, forest industry employment could be affected by transfer of forestlands from BLM ownership. Such transfers may result in a net short-term increase in current harvest because the new owners probably would harvest timber shortly after acquisition.

There would be no change under Alternatives A and C. Property values-at-risk would receive greatest protection from wildfire under these Alternatives. No significant impact to property values at risk would be expected to occur under Alternative B. Some damage may result to rangeland improvements if fires burn at upper limits of conditional suppression parameters. Risk to property values would increase under Alternatives D and E with conditional suppression fires being allowed to burn under broader weather parameters. The potential for greater suppression expense associated with larger fires may result, and the potential for fire to spread to higher value at risk areas is possible. Property values would be most vulnerable to adverse impacts from fire under Alternative F because of the unlimited conditions under which fire would be allowed to burn. Catastrophic situations may develop under this alternative.

Transfer of some lands in the LaPine portion would have a beneficial effect on the economy where the transfer facilitates development. The availability of public lands adjacent to Bend, Redmond and Prineville to accommodate community expansion also would provide opportunities for planned growth. Conveyances through exchange, the Recreation and Public Purposes Act, the Airport Act and public sale would contribute to more rapid and orderly growth in the these areas.

Potential effects on property tax revenues and service costs from ownership transfer have not been estimated. Such effects would depend upon site-specific conditions. Land transferred from BLM to private status would reduce the county's entitlement to annual payments in lieu of taxes by ten cents per acre. This is equivalent to property taxes on land valued at $60 to $100 per acre. Land having a potential assessed value greater than that would probably pay more to county revenues in private ownership than in BLM ownership.

Chapter 5. Consultation and Distribution

Early day LaPine

Introduction

The Brothers/LaPine RMP/EIS was prepared by an interdisciplinary team of specialists from the Prineville BLM District Office. Writing of the RMP/EIS began in the spring of 1987; however, a complex process that began in August 1986 preceded the writing phase. The RMP/EIS process included resource inventory, public participation, interagency coordination and preparation of a management situation analysis (on file at the Prineville District Office). Consultation and coordination with agencies, organizations and individuals occurred throughout the planning process.

Public Involvement

A notice was published in the Federal Register and local news media in August 1986 to announce the formal start of the RMP/EIS planning process. At that time a planning brochure was sent to the public to request further definition of issues within the planning area. An opportunity was provided to submit comments on proposed criteria to be used in formulating alternatives.

In March 1987, 466 copies of proposed issues and alternatives booklet were mailed to interested agencies, organizations and individuals. A notice of document availability was also published in the local news media.

Appendix A summarizes public involvement during the development of the RMP/EIS.

Agencies and Organizations Contacted or Consulted

The RMP/EIS team contacted or received input from the following organizations during the development of the RMP/EIS.

Federal Agencies

U.S.D.E. Bonneville Power Administration
U.S.D.I. Fish and Wildlife Service
U.S.D.A. Forest Service
U.S.D.A. Soil Conservation Service

State and Local Governments

Fish and Wildlife Department
Department of Forestry
Department of Lands
Historic Preservation Officer
Department of Geology and Mineral Industries
Oregon State Parks and Recreation, Division of the Department of Transportation
Crook County Commissioners
Deschutes County Commissioners
City of Redmond

Organizations

Cascade Studs, inc.
Native Plant Society
Northwest Federation of Mineralogical Societies
Oregon Natural Resources Council
Sand Fleas 4 X 4 Club
The Nature Conservancy

List of Agencies, Persons and **Organizations** to' Whom Copies of the **RMP/EIS** Have Been Sent

Federal Agencies

U.S. Environmental Protection Agency
U.S.D.A. Forest Service
U.S.D.A. Soil Conservation Service
U.S.D.E. Bonneville Power Administration
U.S.D.I. Bureau of Indian Affairs
U.S.D.I. Fish and Wildlife Service
U.S.D.I. Geological Survey
U.S.D.I. National Park Service
U.S.D.I. Bureau of Mines
U.S.D.I. Bureau of Reclamation

State and Local Government

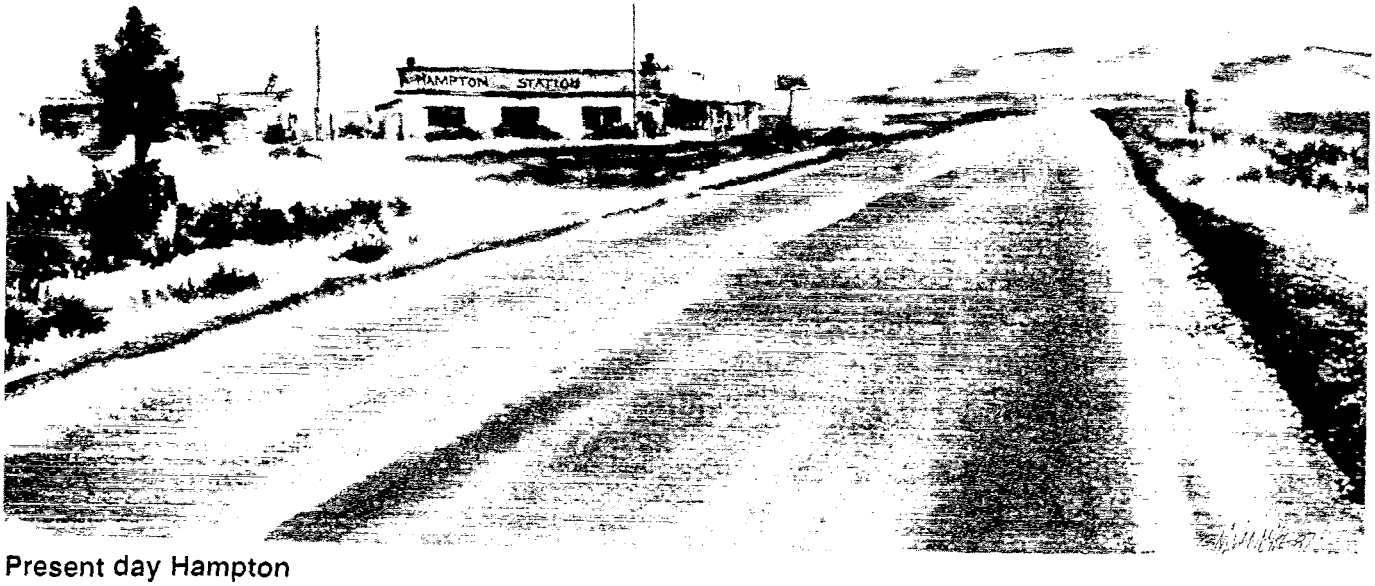
Crook County Court
Crook County Planning Commission
Central Oregon Intergovernmental Council
Deschutes County Planning Department
Lake County Commissioners
Oregon State University Extension Service
Department of Environmental Quality
Department of Fish and Wildlife
Department of Geology and Mineral Industries
Division of State Lands
Department of Land Conservation and Development
Department of Forestry
Parks and Recreation, Division of the Department of Transportation
Department of Agriculture
Historic Preservation Officer
Clearinghouse, Executive Department A-95 Intergovernmental Relations Division
State Library
National Association of Conservation Districts

Interest Groups and Organizations

1000 Friends of Oregon
American Fisheries Society
AMOCO Production Company
Association of Oregon Archaeologists
Atlantic Richfield Company
Audubon Society
Brooks Resources Corporation
Cascade Holistic Economic Consultants
Cascade Motorcycle Club
Desert Trail Association
Izaak Walton League
League of Women Voters
National Mustang Association
Natural Resources Defense Council
National Wildlife Federation
Native Plant Society of Oregon
Nature Conservancy
Northwest Environmental Defense Center
Northwest Federation of Mineralogical Science
Northwest Mineral Prospectors Club
Northwest Mining Association
Northwest Petroleum Association
Northwest Power Planning Council
Northwest Timber Association
Oregon Cattleman's Association
Oregon Council of Rock and Mineral Clubs
Oregon Environmental Council
Oregon Hunter's Association
Oregon Natural Heritage Program
Oregon Natural Resources Council
Oregon Sportsman and Conservationist
Oregon Trout
Oregon Wildlife Federation
Pacific Gas Transmission Company
PNW Research Natural Area Forestry Science Lab
Pacific NW 4 Wheel Drive Association
Public Lands Restoration Task Force
Shell Western F&P Inc.
Sierra Club
Society of American Foresters
Society for Range Management
Sunriver Anglers Club
The Wilderness Society
The Wildlife Society
Western Council; Lumber, Production and Industrial Workers
Western Forest Industries Association
Western Forestry and Conservation Association
Western Wood Products Association
Wild Horse Organized Assistance
Wildlife Management Institute

Approximately 375 additional individuals and organizations who have expressed an interest in use and management of public lands in the planning area were also sent copies of the draft RMP/EIS. Included in this group are all grazing lessees within the planning area, members of the Oregon legislature, U.S. Congressional delegation and various educational institutions.

Chapter 6. List of Preparers, References, Glossary and Index



Present day Hampton

List of Preparers

Although individuals have primary responsibility for preparing sections of an environmental impact statement or a resource management plan, the document itself is an interdisciplinary team effort. An internal review of the document was conducted at each stage of its preparation. Specialists at the district level and the statelevel of the Bureau of Land Management reviewed the analysis and supplied information. Contributions by individuals in the preparation of the document may be subject to revision by other BLM specialists and by management staff members during the internal review process.

Name	Primary Responsibility	Discipline	Related Professional Experience
Dale Bays	Socioeconomics	Economist	Economist, BLM, 14 years
Dean Bolstad	Wild Horses	Range Conservationist	Range Conservationist, BLM, 11 years
Brian Cunninghame	Team Leader	Project Manager	Supervisory Natural Resource Specialist, Outdoor Recreation Planner, BLM, 20 years
Dennis Davis	Minerals	Geologist	Geologist, BLM, 13 years
Wayne Elmore	Wildlife/Riparian	Riparian Specialist	Wildlife Biologist, BLM, 20 years
Ron Halvorson	Areas of Critical Environmental Concern - Special Status Species	Threatened or Endangered Species Coordination	Range Conservationist, Botanist, BLM, 13 years
Jonne Hower	Writer/Editor	Range Management, Communications	1½ years, BLM (writer/editor) 5½ years, USDA-SCS (Public Information Officer, Writer/Editor, Soil Conservationist) 1½ years, State of Oregon (Public Information Officer)
Steve Lent	Fire Management	Fire Management Officer	Fire control, BLM, 8 years; 12 years, Forest Service
Rosalie McFarland	Word Processing	Public Contact Specialist	Army, Navy, Air Force, OSD, BLM, 22 years
Earl McKinney	Livestock Grazing	Range Conservationist	Range Conservationist, BLM, 15 years
Doug Parker	Forestry	Forester	Forester/Silviculturist BLM, 9 years
Phil Paterno	Lands	Realty Specialist	Realty Specialist, BLM, 13 years
Roy Pearl	Rockhounding	Outdoor Recreation Planner	Forester, Planning Coordinator, Outdoor Recreation Planner, BLM, 22 years
Berry Phelps	Off-road vehicles visual quality	Outdoor Recreation Planner	Outdoor Recreation Planner, Wilderness Specialist, Natural Resource Specialist, BLM, 10 years
Don Smith	Technical Coordinator	Associate District Manager, Resources	Resource Manager, BLM, 18 years
Larry Thomas	Climate, Air, Soils, Water	Soil Science, Biology, Watershed/Hydrology	Soil Scientist, 1 year, Watershed Specialist, BLM, 18 years
Suzanne Crowley Thomas	Cultural Resources, Paleontology	Archaeology	Archaeologist, BLM, 10 years

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Glossary of Terms

Actual Use-The true amount of grazing AUMs based on the numbers of livestock and grazing dates submitted by the livestock operator and confirmed through periodic field checks by BLM personnel.

Adjustments-Changes in animal numbers, periods of use, kinds or class of animals or management practices as warranted by specific conditions.

Allotment-An area of land where one or more livestock operators graze their livestock. Allotments generally consist of public lands administered by the BLM, but may include other federally-managed, state owned or private lands, An allotment may include one or more separate pastures. Livestock numbers and periods of use are specified for each allotment where BLM controls use.

Allotment Management Plan (AMP)-A written program of livestock grazing management, including supportive measures, if required, designed to attain specific management goals in a grazing allotment.

Animal Unit Month (AUM)—A standardized measurement of the amount of forage (800 pounds of forage) required to sustain one cow with one calf, or their equivalent for one month.

Aquatic-Living or growing in or on the water.

Archaeological Site—Geographic locale containing structures, artifacts, material remains and/or other evidence of past human activity.

Area of Critical Environmental Concern (ACEC)-Places within the public lands where special management attention is required (when such areas are developed or where no development is required) to protect and prevent irreparable damage to important historical, cultural or visual values, fish and wildlife resources, other natural systems or processes or to protect life and safety from natural hazards.

Area of Critical Mineral Potential (ACMP):An area nominated by the public as having mineral potential that is important to the local, regional, or national economy or that could become important in the future. These nominations are used by BLM to reevaluate areas under existing or 'de facto' withdrawals (from mineral entry).

Board Foot (bf)—A unit of solid wood, one foot square and one inch thick.

Buffer Strip—A protective area adjacent to an area of concern requiring special attention or protection. In contrast to riparian zones which are ecological units, buffer strips can be designed to meet varying management concerns.

Clearcutting—A method of harvesting timber in which all trees, merchantable or unmerchantable, are cut from an area.

Climax—See Potential Natural Community.

Commercial Forestlands—Forestland that is now producing, or is capable of producing, at least 20 cubic feet per acre per year of commercial tree species.

Commercial Tree Species-Tree species whose yields are reflected in the annual timber sale program: pines, firs, spruce, Douglas fir, cedar and larch.

Commodity Resources-Goods or products of economic use or value.

Compaction—The process of packing firmly and closely together; the state of being so packed, (e.g., mechanical compaction of soil by livestock or vehicular activity). Soil compaction results from particles being pressed together so that the volume of soil is reduced. It is influenced by the physical properties of the soil, moisture content and the type and amount of compactive effort.

Conditional Suppression—Intensity of fire suppression actions are not fixed and vary with the conditions at the time of fire start, Conditional suppression areas are managed on a least cost basis.

Coordinated Resource Management Plan (CRMP)—A plan for the management of all major resources and landownerships within a specific area developed by all landowners, managers and resource users working as a planning team.

Crucial Wildlife Habitat—Parts of the habitat needed to sustain a wildlife population at critical periods of its life cycle. This is often a limiting factor on populations, such as breeding habitat, winter habitat, etc.

Cultural Resources-Fragile and nonrenewable elements of the environment including archaeological remains (evidence of prehistoric or historic human activities) and sociocultural values traditionally held by ethnic groups (sacred places, traditionally utilized raw materials, etc.).

Cultural Site-Any location that includes prehistoric and/or historic evidence of human use, or that has important sociocultural value.

Deferment—The withholding of livestock grazing until a certain stage of plant growth has been reached, usually until seeds have matured and food has been stored in the roots.

Deferred Rotation Grazing-Discontinuance of livestock grazing on various parts of a range in succeeding years, allowing each part to rest successively during the growing season. This permits seed production, establishment of new seedlings or restoration of plant vigor. Two, but commonly three or more, separate pastures are required.

Designated Area-High population center having air quality concerns under the Oregon Smoke Management Plan.

Distribution—The uniformity of livestock grazing over a range area. Distribution is affected by the availability of water, topography, type and palatability of vegetation, as well as many other factors.

Diversity—A measure of the variety of species and habitats in an area that take into account the relative abundance of each species or habitat.

Early Seral-Ecological status that corresponds to 0 to 25 percent of the plant composition found in the potential natural plant community. It could be considered synonymous with poor range condition.

Ecological Status—Four classes used to express the degree to which the composition of the present plant community reflects that of climax. They are:

Successional Stage (Range Condition)	Percentage of Present Plant Community That is Climax for the Range Site
Potential Natural Community	76-100
Late Sera!	51—75
Mid-Seral	26-50
Early Seral	o-25

Endangered Species-A plant or animal species whose prospects for survival or reproduction are in immediate danger as designated by the Secretary of the Interior and as further defined by the Endangered Species Act of 1973, as amended.

Environmental Impact Statement (EIS)—A formal document to be filed with the Environmental Protection Agency that considers significant environmental impacts expected from implementation of federal actions.

Erosion-Detachment and movement of soil or rock fragments by water, wind, ice or gravity.

Exclosure—An area fenced to exclude livestock.

Federal Land Policy and Management Act of 1976 (FLPMA)-Public Law 94-579 of October 21, 1976, often referred to as the BLM 'Organic Act,' which provides the majority of BLM legislated authority, direction, policy and basic guidance for management.

Fire Suppression Areas—Those areas identified where fire suppression is required in order to prevent unacceptable resource damage and/or to prevent loss of life or property.

Fire Use Areas-Areas where prescribed fire (both planned and unplanned ignitions) may be used on a rotational basis to protect, maintain, or enhance ecosystems. Specific objectives to be accomplished are predetermined for all areas.

Forage-All browse and herbaceous plants that are available to grazing animals including wildlife and domestic livestock.

Forb—A broad leafed herb that is not grass, sedge or rush.

Forestland—Land which is now, or is capable of being, at least 10 percent stocked by forest trees, and is not currently developed for nontimber use.

Grazing System-The manipulation of livestock grazing to accomplish a desired result.

Groundwater—Subsurface water that is in the zone of saturation.

Habitat—A specific set of physical conditions that surround a species group or a large community. In wildlife management, the major constituents of habitat are considered to be food, water, cover and living space.

Habitat Diversity-The relative degree or abundance of plant species, communities, habitats or habitat features (e.g. topography, canopy layers) per unit of area.

Habitat Management Plan (HMP)—A plan for the management of wildlife habitat.

Habitat Type—The collective area which one plant association occupies or will come to occupy as succession advances. The habitat type is defined and described on the basis of the vegetation and associated environment.

Historic Site—Locales used by immigrants from the 1820's to 1930's.

Impact—A spatial or temporal change in the human environment caused by man. The change should be (1) perceptible, (2) measurable and (3) relatable through a change agent to a management activity or alternative.

Infiltration—The gradual downward flow of water from the surface into the soil profile.

Issue—A subject or question of widespread public discussion or interest regarding management of public lands within the Prineville District and identified through public participation.

Land Treatment—All methods of range development and soil stabilization such as reseeding, sagebrush control (burning and mechanical), pitting, furrowing, water spreading, etc.

Late Seral—Ecological status corresponding to 51 to 75 percent of the plant composition found in the potential natural plant community. Synonymous with good range condition.

Leasable Minerals-Mineralssubject to lease by the federal government, including oil, gas and coal.

Life Form—A group of wildlife species whose requirements for habitat are satisfied by similar successional stages within a given plant communities.

Litter—A surface layer of loose, organic debris, consisting of freshly fallen or slightly decomposed organic materials.

Livestock Operation—A ranch or farm where a significant portion of the income is derived from the continuing production of livestock.

Locatable Minerals-Generally the metallic minerals subject to development specified in the General Mining Law of 1872; with the resource area, includes bentonite gypsum, uranium minerals, etc.

Long Term—Beyond the 1 O-year period necessary for full implementation of this RMP.

Lopping and Scattering-Cutting limbs from the bole of a tree and spreading them evenly over the ground, without burning.

Management Situation Analysis (MSA)—A comprehensive display of physical resource data and an analysis of the current use, production, condition and trend of the resources and the potentials and opportunities within a planning unit, including a profile of ecological values.

Mid-Seral-Ecological status that corresponds to 26 to 50 percent of the composition found in the potential natural plant community. It could be considered synonymous with fair range condition.

Mitigation Measures—Methods or procedures committed to by BLM for the purpose of reducing or lessening the impacts of an action.

National Register of Historic Places (NRHP)—A register of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, and culture established by the Historic Preservation Act of 1966 and maintained by the Secretary of the Interior.

Noncommercial Forestland — Forestland which is not capable of producing at least 20 cubic feet of wood per acre per year of commercial tree species.

Noncommercial Tree Species-Species whose yields are not reflected in the allowable cut, regardless of their saleability. Includes all hardwoods, juniper and mountain mahogany.

Nonoperable-Forestland or woodland that is unsuitable for timber harvest because:

(1) Its physical isolation or the severity of the topography make it extremely difficult or impossible to manage for sustained yield timber productions; (2) Soil erosion from harvesting activities would easily reduce or destroy the potential for producing timber, or; (3) Severe reforestation problems would prevent establishment of commercial tree species in accepted numbers and within acceptable time limits (usually 5 to 1.5 years).

Noxious Weeds—A weed specified by law as being especially undesirable, troublesome and difficult to control

Off Road Vehicle (ORV)—Any motorized vehicle capable of, or designed for, travel on or immediately over land, water or other natural terrain, excluding: (1) any nonamphibious registered motorboat, (2) emergency vehicles, (3) vehicles in official use.

Paleontology-The study of the life of past geological ages as seen in fossil plants and animals.

Perennial (Permanent) Stream—A stream that ordinarily has running water on a year-round basis.

Period of Use-The time of livestock grazing on a range area based on the type of vegetation or stage of vegetative growth.

Permit/Lease (Grazing)—Under Section 3 of the Taylor Grazing Act, a permit is a document authorizing use of public lands within grazing districts for the purpose of grazing livestock.

Under Section 15 of the Taylor Grazing Act, a lease is a document authorizing livestock grazing use of public lands outside grazing districts.

Potential Natural Community (PNC)-The final or stable biotic community in a successional series. It is usually self-perpetuating and in equilibrium with the other habitat. This corresponds to 76 to 100 percent of the plant composition found in the potential natural plant community. It could be considered synonymous with excellent range condition.

Prehistoric—Locales used by native peoples from as much as 13,000 years ago to the 1850's.

Prescribed Fire—A planned burning of live or dead vegetation under favorable conditions which would achieve desired management objectives.

Presuppression—All actions involved in the location or allocation of suppression resources in order to be prepared to suppress wildland fires.

Protective Ground Cover—See watershed cover.

Public Lands-Any land and interest in land owned by the United States Government and administered by the Secretary of the Interior through the Bureau of Land Management. May include public domain or acquired lands in any combination.

Public Values-Those values found on public land which include visual, cultural, economic and social values as well as natural resources such as soil, water, vegetation and wildlife.

Range Development—A structure, excavation, treatment or development to rehabilitate, protect or improve public lands for range betterment.

Range Seeding—The process of establishing vegetation by the mechanical dissemination of seed.

Range Trend-The direction of change in range condition and soil.

Raptors—Bird species with sharp talons and strongly curved beaks which have adapted to seize prey (e.g. eagles, hawks, etc.)

Recreation and Public Purposes Act (R&PP Act)-This act authorizes the Secretary of the Interior to lease or convey public lands for recreational and public purposes under specified conditions to states or their political subdivisions, and to nonprofit corporations and associations.

Research Natural Areas (RNA)-Areas established and maintained for research and education. The general public may be excluded or restricted where necessary to protect studies or preserve research natural areas. Lands may have: (1) Typical or unusual faunistic or floristic types, associations, or other biotic phenomena, or (2) Characteristic or outstanding geologic, pedologic, or aquatic features or processes.

Reserved Federal Mineral Estate—Property on which the federal government has retained ownership of the minerals (and the right to remove the minerals) while transferring the surface estate into private or other ownership.

Residual Ground Cover-That portion of the total vegetative ground cover that remains after livestock grazing.

Right-of-Way—A permit or an easement which authorizes the use of public lands for certain specified purposes, commonly for pipelines, roads, telephone lines, electric lines, reservoirs, etc., and also the lands covered by such an easement or permit.

Riparian Area—A terrestrial site influenced by perennial and intermittent waters which in combination with the water table level, soils and vegetation create a microclimate apart from that which exists on the upland terrestrial sites. These areas are found adjacent to rivers, streams, lakes, reservoirs, ponds, marshes, seeps, springs, bogs and wet meadows.

Runoff-That portion of the precipitation on a drainage area that is discharged from the area in stream channels including both surface and subsurface flow.

Sediment—Soil, rock particles and organic or other debris carried from one place to another by wind, water or gravity.

Sensitive Species-Plant or animal species not yet officially listed, but which are undergoing a status review or are proposed for listing according to a Federal Register notice published by the Secretary of the Interior or the Secretary of Commerce or according to comparable state documents published by state officials.

Seral Stage—The series of relatively transitory communities, including plants and animals, which develop during ecological succession, beginning after pioneer stage (beginning with bare ground) to the potential natural community.

Short-Term—The 1 O-year period necessary for RMP implementation.

Shrub—A low, woody plant, usually with several stems, that may provide food and/or cover for animals.

Slash—The branches, bark, tops, cull logs and broken or uprooted trees left on the ground after logging has been completed.

Soil—The unconsolidated mineral material on the immediate surface of the earth that serves as a natural medium for the growth of land plants.

Soil Moisture—Water held in the root zone by capillary action. Part of the soil moisture is available to plants, part is held too tightly by capillary or molecular forces to be removed by plants.

Soil Productivity—Capacity of a soil, in its normal environment, for producing specified plants under specified management systems.

Special Management Areas—See Areas of Critical Environmental Concern (ACEC) and Research Natural Areas (RNA).

Special Status Species—A threatened, endangered or sensitive plant or animal species.

Stocked, 10 percent—Tree seedlings and saplings (0.5 inches in diameter 4.5 feet above the ground) that are well distributed over the land and are more than 30 per acre in number. Or, they are trees larger than 5 inches in diameter with foliage that covers at least 10 percent of the land surface area.

Sustainable Annual Harvest-The yield a forest can produce continuously from a given level of management.

Thermal Cover-Vegetation or topography that prevents radiational heat loss, reduces wind chill during cold weather and intercepts solar radiation during warm weather.

Threatened Species-A plant or animal species the Secretary of Interior has determined to be endangered in the foreseeable future throughout all or most of its range.

Upland-All rangelands other than riparian or wetland areas.

Value-at-Risk Classes—Six value classes (I-6, low-to-high) derived through interdisciplinary team evaluation of resource values for an area. Point values given an area by individual disciplines are combined to determine general values-at-risk classification for an area.

Vegetative (Ground) Cover-The percent of land surface covered by all living vegetation (and remnant vegetation yet to decompose) within 20 feet of the ground.

Vegetative Manipulation-Alteration of present vegetation by using fire, plowing or other means to manipulate natural successional trends.

Visual Resource(s)-The land, water, vegetation and animals that comprise the scenery of an area.

Water Quality-The chemical, physical and biological characteristics of water with respect to its suitability for a particular use.

Watershed-Lands which are enclosed by a continuous hydrologic drainage divide and located upslope from a specified point on a stream.

Watershed Cover-The material (vegetation, litter, rock) covering the soil and providing protection from, or resistance to, the impact of raindrops and the energy of overland flow.

Watershed Values—Soil productivity and stability and the storage, yield, quality and quantity of surface and subsurface waters.

Water Yield-The quantity of water derived from a unit area of watershed.

Wilderness Study Area (WSA)—A roadless area that has been inventoried and found to be wilderness in character, having few human developments and providing opportunities for solitude and primitive recreation, as described in Section 603 of the Federal Land Policy and Management Act and Section 2(c) of the Wilderness Act of 1964.

Wildlife Tree-A standing dead tree from which the leaves and most of the limbs have fallen that exceeds 10 feet in height and 10 inches in diameter at breast heigbt.

Withdrawals—Actions which restrict the use of public lands and segregate the lands from the operation of some or all mineral exploration and development under the mineral laws.

Woodland-Land producing trees not typically utilized as sawtimber and sold in units other than board feet.

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Appendices

Main Street—Redmond, about 1915

Appendix A. Public Involvement

Thirty-nine written responses were received from a mailing of 329 copies of the BrothersiLaPine Resource Management Plan Preliminary Issues and Alternatives Brochure. A total of 39 people attended the three public meetings in Prineville, Bend and LaPine on September 9, 10 and 11, 1986.

Public comments on preliminary issues were used in several ways. As a result of public comment, an alternative emphasizing commodity production while accommodating natural values was added and other proposed preliminary alternatives were modified.

Some resource objectives, under various alternatives, were changed to provide a more realistic range of possible ways public lands could be managed. For example, wild horses would be gathered and removed under the alternative emphasizing natural values; before, wild horse numbers would have been allowed to increase under this alternative.

Changes made as a result of public comment were included in the discussions of land tenure and access, forestry, recreation and areas of critical environmental concern.

On March 27, 1987, 466 copies of the BrothersiLaPine Proposed Issues and Alternatives booklet were mailed to interested agencies, organizations and individuals. In response to that mailing, three written comments were received. The comments were related to the manner in which public areas would be acquired and considerations which should be given to land exchange proposals, These points have been addressed in the format and level of details of this document.

One comment also indicated that a more unified approach was needed to deal with the court-ordered livestock grazing decisions contained in the 1983 Brothers Grazing Management RPS and the current BrothersiLaPine RMP/EIS. This BrothersiLaPine RMP/EIS summarizes decisions form the Brothers Grazing Management RPS and the Brothers MFP and identifies future program development for other resources in the Brothers portion of the planning area. In addition, it identifies program direction for all resources in the LaPine portion of the planning area.

Appendix B. Criteria to be Used in the Selection of the Preferred Alternative

Decision criteria are measures for evaluating alternatives and selecting or developing a preferred land use alternative. The preferred alternative will be the alternative which best satisfies the following criteria:

Lands

Allows adequate land allocation for communication sites, access development and designation of right-of-way corridors while protecting other significant resource values.

Provides for land exchanges, transfers and sales that best serve public interests.

Forestland

Establishes a timber sale harvest level that assists in meeting local and regional needs. Protects other resource values through withdrawals or appropriate restrictions on management, harvest or operational practices.

Recreation

Meets the demands for developed and dispersed recreation opportunities.

Areas of Critical Environmental Concern (ACEC)

Provides for designation of areas that meet ACEC criteria of relevance and significance.

Wild Horses

Meets the requirements of the Wild Horse and Burro Act, Federal Land Policy and Management Act and Public Rangelands Improvement Act. Considers public interest and preferences, established uses and resource values of the public lands and the manageability of the herd area.

Livestock Grazing

Meets the requirements of the Federal Land Policy and Management Act, Public Rangelands Improvement Act and Taylor Grazing Act. Meets the long-term objective of producing a sustained level of livestock forage to m regional and national needs.

Wildlife Habitat

Protects or improves important wildlife habitat offering food, water and shelter during all seasons of the year.

Protects, maintains or enhances habitat of special status plant or animal species.

Fire Management

Meets resource protection requirements specified by BLM policy. Meets conditions of interagency agreements, and state and federal laws. Provides fire management direction best meeting natural resource management goals and objectives.

Visual Resources

Provides for maintaining or enhancing the visual quality of the landscape in areas having high or sensitive visual qualities.

Cultural and Paleontological Resources

Protects cultural and paleontological resources in accordance with applicable laws and regulations.

Minerals

Allows exploration and development of mineral and energy resources consistent with the BLM's minerals policy while protecting other significant resource values.

Soil, Water and Air Resources

Protects and/or improves the quality of the soil, water and air resources. Provides for compliance with applicable pollution control laws. Coordinates with other related resources and programs of state, local and federal agencies.

Provides for watershed rehabilitation to areas where deterioration of watershed values due to accelerated erosion and runoff has been significant.

Socioeconomic Conditions

Maintains or expands the total level of local employment and personal earnings which are dependent on raw materials, recreation-and other use opportunities available on lands administered by the BLM.

Maintains or expands the contribution of the BLM's programs to the local public revenues.

Consistency with State, Local and Other Federal Natural Resource Plans, Programs and Policies

Demonstrates consistency with statewide planning goals (Department of Land Conservation and Development), local comprehensive plans and officially approved local resource-related plans programs and policies.

Demonstrates consistency with other federal agencies' officially approved resource-related plans, programs and policies. Provides coordinated approaches to regional issues and projects.

Appendix C. Consistency of Alternatives with State of Oregon Wildlife Goals and Basic Objectives of the Forestry Program for Oregon[1/]

Wildlife Goal	Discussion
1. To maintain all species of wildlife at optimum levels and prevent the serious depletion of any indigenous species.	All alternatives except A and F are consistent with the objective: Maintaining or achieving maximum wildlife species diversity through habitat diversity and preventing any depletion of species with proper management.
2. To develop and manage the lands and waters of the state in a manner that will enhance the production and public enjoyment of wildlife.	Habitat improvement for the upland, riparian and aquatic habitats in Alternative A, B, D, E and F are consistent with the objective. Alternative C would maintain the present situation without any planned development to improve.
3. To regulate wildlife populations and the public enjoyment of wildlife in a manner that is compatible with primary uses of the land and waters of the state and provides optimum public recreation benefits.	Alternatives D and E are consistent with the objective by improving habitat diversity and increasing wildlife species diversity, which would enhance the quality of public enjoyment of wildlife. Alternative B and C would maintain the existing situation. Alternatives A and F are not consistent with this goal.
4. To develop and maintain public access to the lands and waters of the State and the wildlife resources thereon.	Alternatives B, C, D, E and F would restrict ORV use in areas that would have adverse impacts to wildlife species. Alternative A would be consistent with the objective in developing or maintaining, public access, although wildlife disturbances could occur.
5. To permit an orderly and equitable utilization of available wildlife.	All alternatives are consistent with this objective. Limited access and ORV use could restrict opportunities into some areas under all alternatives.

Basic Forestry Objective[1/]	Discussion
1. To maintain the maximum commercial forest land base consistent with resource uses while assuring environmental quality.	Alternatives A through D are consistent with the commercial forest land base (suitable for timber production) benchmark of approximately 11,000 acres. Alternatives E and F are not consistent. Environmental quality protection measures under all alternatives would meet or exceed requirements of the Oregon Forest Practices Act.
2. To maintain or increase the allowable annual harvest level to its fullest potential to offset potential socioeconomic impacts.	Alternatives A through D are consistent with the annual sustainable harvest level benchmark. Alternatives E and F are not consistent. The level of harvest the land base can sustain is dependent on the productivity of the land, the level of management the land base receives, and the number of acres allocated to other resource values.
3. To identify and implement the levels of intensive forest management required to achieve maximum growth and harvest.	Alternatives A through D would allow for a full range of intensive timber management practices to get maximum production. New and improved practices would be used, consistent with technological advances. Alternative E would allow such activity under limited circumstances. Alternative F would preclude such activity.
4. To maintain community stability by remaining flexible for increases in future harvest levels that would offset projected shortages.	Annual harvest levels under Alternatives A through E would not affect community stability within the planning area. A reduction in the annual harvest level under Alternative F would cause a slight decline in total local timber supplies. Accelerated harvest under Alternatives A through E would preclude opportunities for substantial harvest for the next 50 years that could slightly affect community stability through the loss of a few timber related jobs. Alternative F would preclude any harvest.

[1/] Based on the Oregon State Department of Forestry, Forestry Program for Oregon, published in 1977 and updated in 1982.

Appendix D. Relationship of Alternatives to County Comprehensive Plans as they Incorporate and Reflect Statewide Land Conservation and Development Goals[1/]

LCDC Statewide Goal

Number and Description	Discussion
1. To ensure citizen involvement in all phases of the planning process.	BLM's land use planning process provides for public input at various stages. Public input was specifically requested in developing the preferred alternative, other alternatives, issues and planning criteria described in the RMP/EIS. Public input will continue to be utilized in the environmental analysis process and development of the final RMP.
2. To establish a land use process and policy framework as a basis for all decisions and actions.	The preferred alternative and other alternatives have been developed in accordance with the land use planning process authorized by the Federal Land Policy and Management Act of 1976 which provides a policy framework for all decisions and actions.
3. To preserve and maintain agricultural lands.	The vast majority of public lands in the planning area are not suitable for intensive agriculture. Alternatives A, B, C, D and E provide for continued use of small tracts of public lands for intensive agriculture either through lease or land sales. The sale of small parcels in Zone 2 or 3 and some exchanges could lead to new owner requests for non-agricultural (non-grazing) use of lands previously in public ownership. Since the new owner would be subject to county plan and building permit requirements, it is assumed that the sale of public land and exchanges would not, in themselves, violate county plans. Alternative F would not be consistent with this goal.
4. To conserve forestlands for forest uses.	The planning area has significant commercial forestland and juniper woodlands. Alternative A and B would increase wood products production. Alternatives C and D would retain current management direction with no change in timber harvest levels, The other alternatives could cause a reduction in timber harvest levels but would protect other forest values.
5. To conserve open space and protect natural and scenic resources.	Natural and visual resources were considered in the development of the preferred alternative and other alternatives. Forest management, under the preferred alternative and other alternatives would impact open space as well as natural and visual resources. Adverse impacts to visual resources, wildlife habitat and unique natural areas are greatest under Alternatives A and B and least under Alternatives E and F where natural values are emphasized.

[1/] Statewide goals 7, 10, 11, 12 and 14 are not generally applicable to all alternatives. Goals 15-19 are not applicable to the counties within the Brothers/LaPine Planning Area.

6. To maintain and improve the quality of the air, water and land resources.	The federal and state water quality standards would be met and water quality would be maintained and/or improved under all alternatives. Burning of logging slash under all alternatives would have a slight temporary effect on air quality at upper atmospheric levels. All alternatives would comply with the statewide smoke management plan.
8. To satisfy the recreational needs of the citizens of the state and visitors.	The BLM actively coordinates its outdoor recreation and land use planning efforts with those of other agencies to establish integrated management objectives on a regional basis. Under the preferred alternative and all other alternatives, opportunities would be provided to meet recreation needs. The quantity of recreational opportunities would be greatest under Alternatives A, B, D and E. The quality of certain types of recreational opportunities would be greatest under Alternatives D, E and F.
9. To diversify and improve the economy of the state.	Alternatives A, B, C and D would induce economic stability or gains in the long term through livestock forage production, mineral exploration and/or timber harvesting. This would result in a slightly improved local and state economy. Alternatives E and F would provide lesser benefits through additional primitive recreation opportunities.
13. To conserve energy.	Conservation and efficient use of energy sources are objectives in all BLM activities. Use of dead trees and slash for chips and firewood is encouraged. Sale and harvest of minor forest products (e.g., posts, poles, firewood) from woodlands and noncommercial forest areas is permitted in most areas.

Appendix E. Standard Operating Procedures for Forest Practices

Roads

Oregon Manual Supplement, Release 5-159 of October 1, 1984, or revisions would be used in preparing road construction requirements for timber sale contracts. Engineering terminology and types of construction equipment are defined in the manual supplement and specifications are provided for all aspects of construction, reconstruction and surfacing.

Slope protection methods to avoid collapse of cut and fill embankments are described. Specifications for rock pits and quarries include provisions for minimum visual intrusion, drainage and control of runoff and restoration after the activity ends.

One section of the manual supplement provides design features to control and minimize erosion during road construction and throughout the design life of the road. Another section addresses soil stabilization practices, including planting, seedings, mulching and fertilizing to establish soil binding vegetation.

Construction standards in areas such as stream crossings, subgrade width, cut and fill slope requirements and type of surfacing would be determined in the timber sale planning process. Basic construction operations are described in detail in the programmatic environmental impact statement the BLM prepared on timber management in the western United States, referred to as the BLM Timber Management FEIS. Road closures would occur where significant impacts to wildlife may result from uncontrolled vehicle access.

Timber Harvest

Cutting areas would be shaped and designed to blend as closely as possible with natural terrain and landscape, minimizing the effect on total forest vistas. Consideration will be given to future harvesting, impacts of road construction and other relevant factors.

Units outside the visual corridor will be designed to salvage dead and dying trees while meeting wildlife, cultural and special status species concerns.

Silvicultural practices would be used which best meet management goals related land use prescriptions and assure prompt forest regeneration. Available harvest options include seed tree method or a variety of partial cutting techniques. The seed tree harvest method utilizes natural regeneration leaving 10 to 15 seed trees per acre and 1 to 5 wildlife snags per acre.

Seed tree methods would not be used as a cutting practice where:

1. Soil slope or other watershed conditions are fragile and subject to unacceptable damage;

2. There is no assurance that the area can be adequately restocked within five years of harvest;

3. Aesthetic values outweigh other considerations.

The selection of trees in partial cuts would be made in a manner to improve the genetic composition of the reforested stand. Cut over areas would be artificially reforested when natural regeneration of commercial species cannot be reasonably expected in 5 to 15 years.

Logging activities would be timed to minimize adverse impacts to other resource values.

Logging systems which least disturb the soil surface and streamside buffer strips are preferred. Logging across any stream supporting fisheries would be avoided.

Tractor skid trails would be designed and located to avoi cross ridge and cross drainage operations. Tractor skidding would be avoided on slopes greater than 35 percent. Maximum acceptable soil compaction within a sale area would be 12 percent. Waterbars would be installed on skid trails when logging is finished.

Landings would be the minimum size commensurate with safety and equipment requirements and located on stable areas to minimize the risk of material entering adjacent streams and waters. Landings would be on firm ground above the high water level of any stream. Landing locations would be avoided on unstable areas, steep side hill areas or areas which require excessive excavation.

Buffer strips along perennial streams, springs and wet meadows would be provided. Intermittent streams producing enough flow for trout or anadromous fis A

spawning areas or which carry heavy silt loads to perennial streams would receive the same considerations as a perennial stream.

Debris entering a stream would be removed while logging to avoid disturbing natural streambed conditions and streambank vegetation.

Trees will be left to provide for creatures that live in tree cavities if safety hazards are not created.

Slash disposal would be accomplished in a manner conducive to reforestation and advantageous to wildlife. Slash would be burned when necessary, in conformance with state fire protection and air pollution regulations.

Contracts

Contracts, usually awarded on a competitive basis, is the way all timber harvest and many forest development practices are accomplished. Standard and special provisions (which include mitigating measures) in a contract describe performance standards for the contractor in carrying out the action in accordance with applicable laws, regulations and policies. The selection of special provisions is governed by the scope of the action to be undertaken and the physical characteristics of the specific site.

Standard provisions of the basic timber sale contract, Bureau Form 5450-3, are applicable for all timber sales. Limitations on timber harvesting and related activities, as identified in the Church Report (U.S. Congress, Senate 1973) and analyzed in the BLM Timber Management Final EIS 1975, have been adopted by the BLM. Bureau manuals and manual supplements provide a variety of approved special provisions for use, as appropriate, in individual contracts. The combination of selected special provisions constitutes Section 41 of the timber sale contract (Form 5450-3).

'Appendix F. Grazing **Allotments** by Category, **LaPine** Portion

Allotment Name	Allotment Number	Allotment Category	Public Land Acres	Currently Allocated Forage–AUMs
A&L Sheep	7592	Maintain	6,260	1,012
Brown	7504	Maintain	525	93
Cliff	7509	Maintain	4,448	343
Finley	7595	Maintain	2,405	272
Helliwell	7536	Custodial	360	60
Kellems	7574	Maintain	170	34
Lebeau	7594	Custodial	23	6
Long Prairie	7597	Maintain	690	210
Miltenberger	7552	Maintain	4,693	656
Morgart	7554	Custodial	80	11
Poole	7559	Maintain	1,358	180
Stearns	7575	Maintain	518	97
Yager	7586	Maintain	700	57
TOTAL			22,230	3,031

"Maintain" Category Criteria

- Present range condition is satisfactory.
- Allotments have moderate or high resource production potential and are producing near their potential (or trend is moving in that direction).
- No serious resource-use conflicts/controversy exist.
- Opportunities may exist for positive *economic* return from public investments.
- Present management appears satisfactory.

"Improve" Category Criteria

- Present range condition is unsatisfactory.
- Allotments have moderate to high resource production potential and are producing at low to moderate levels.
- Serious resource use conflicts/controversy exist.
- Opportunities exist for positive economic return from public investments
- Present management appears unsatisfactory.

"Custodial" Category Criteria

- Present range condition is not a factor.
- Allotments have low resource production potential and are producing near their potential.
- Limited resource-use conflicts/controversy may exist.
- Opportunities for positive economic return on public investment do not exist or are constrained by technological or economic factors.
- Present management appears satisfactory or is the only logical practice under existing resource conditions.

Appendix G. Discussion of Grazing Treatments and Proposed Systems

Treatments

A grazing treatment is livestock grazing on a pasture at a specific intensity with specific timing in relation to the annual growth cycle of key plant species. General descriptions of grazing treatments are:

Early Grazing:Grazing occurs for one to two months before the start of the critical growth period (April 15 to May 1). Livestock are utilizing primarily the previous year's growth although there is some use of early green growth.

Growing Season Grazing:Grazing occurs during the critical growing period. generally between April 15 and seed-ripe for key grass species (July 15 to August 1).

Deferred Grazing: Grazing occurs after seed-ripe and may include any part of the period until growth begins in the spring.

Winter:Grazing occurs in late fall and winter months while plants are dormant.

Rest: No grazing in the grazing season excluding any of the listed treatments.

Grazing System

A grazing system may be one or more planned livestock grazing treatments which generate changes in, or maintain composition of, key plant species. Key species are plants which serve as indicators of objective accomplishment in vegetation communities. Grazing systems which allow key species to complete the growth stages generally result in increases of, or maintenance of, key species. In the planning area, the critical part of the growing season normally occurs from April 15 to August 1, depending on the elevation.

Early Spring Grazing System:Grazing occurs for one to two months before the start of the critical growing period. Early spring grazing utilizes early maturing grasses that are not as palatable later in the season, such as cheatgrass and Sandberg's bluegrass and utilizes the previous year's growth of perennial plants. Because grazing ceases while adequate soil moisture is available, most perennial plants are able to produce seed and replenish their carbohydrate reserves. Early spring grazing permits seedling establishment. An increase in key upland herbaceous species composition is expected under this system.

Light utilization on key upland woody species is expected with early spring grazing. Consequently, a long-term increase in composition of these species would occur in areas where potential for increase exists because plant vigor and reproduction would be maintained.

Key woody and herbaceous riparian vegetation would increase with this system. Better distribution of livestock because of cool weather, abundant green upland forage and more water sources would reduce use on riparian vegetation. Regrowth after grazing would occur because of adequate soil moisture in the riparian areas.

Spring/Summer Grazing System:Grazing occurs every year in the critical part of the growing season under this system. A decrease in native. key upland herbaceous and woody species is expected on areas within an allotment that receive heavy utilization -primarily areas adjacent to water developments, riparian areas and flat valley bottoms.

Livestock prefer green forage. As upland herbaceous species become dry in late summer, livestock start grazing green herbaceous and woody species in accessible riparian areas. Heavy utilization generally occurs.

Deferred Grazing System:The deferred system allows grazing after most of the upland herbaceous key species have reached seed ripe stage and have replenished carbohydrate reserves. The composition of key upland herbaceous species, such as Idaho fescue and bluebunch wheatgrass, is expected to increase.

Moderate utilization of upland woody species encourages growth of additional twigs and therefore increases forage production. Reproductive capacity decreases slightly over time because increased twig growth reduces development of flowers and fruits. Long-term composition is not expected to change.

Livestock would concentrate in accessible riparian areas because of the availability of green forage and water and the hot late summer temperatures. This concentration results in heavy utilization of riparian herbaceous and woody species. The composition of key woody riparian species would decrease under this system because grazing would occur during the majority of the critical growth period for these species, particularly willow. Herbaceous riparian species composition would not change because deferred grazing would allow sufficient plant growth to sustain root reserves.

---Appendix H. Design Standards and Standard Operating Procedures for. Range Developments

Range Developments

The following is a discussion of typical design features and construction practices for range developments and treatments proposed in this RMP/EIS. They include many special features that can be a part of a project's design which are not discussed specifically in this appendix. One example of a special design feature is the use of a specific fence post color to blend with the surrounding environment, mitigating some visual impact of the fence. These design features could be developed for individual projects at the time an environmental analysis completed.

Structural Developments

Fences

Fences are constructed to provide exterior allotment boundaries, divide allotments into pastures, protect streams and riparian zones and control livestock. Most fences are three or four-wire strands strung between steel posts with intermediate wire stays. Fence lines are not bladed or scraped, Gates or cattleguards are installed where fences cross existing roads. All fences are designed to mitigate wildlife movement problems.

Spring Developments

Where natural springs exist, standard operating procedure calls for development to provide a more dependable source of water for livestock and wildlife while protecting the source from trampling. These developments will permit grazing systems which would allow periods of rest or deferment of livestock grazing.

Springs are developed by hand labor or backhoe to instal a buried collection system. A short pipeline may be installed to deliver water to a trough. Ramps, rocks or flatboards are installed in all water troughs to allow small birds and mammals to gain access to and/or escape from the water. Normally the spring area and the overflow is fenced after development to exclude livestock.

Proposed Rangeland Developments by Alternative

	Alt. A Commodity Production		Alt. B Commodity Production w/Natural Values		Alt. C Existing Management		Alt. D Preferred Alternative		Alt. E Natural Values w/Commodities		Alt. F Natural Values	
Allotment Number	Fence (mi)	Water holes	Fence (mi)	Water holes	Fence (ml)	Water holes	Fence (ml)	Water holes	Fence (mi)	Water holes	Fence (mi)	Water holes
7504	1	1	1	0	0	0	1	0	0		0	0
7509	12	4	12	4	0	0	12	4	1.5		33	0
7536	0	1	0	1	0	0	0	1	0	1	2.5	0
7552	2	0	2	0	0	0	2	0	0	0	5	0
7554	0	0	0	0	0	0	0	0	0	0	0	0
7559	2	0	0	0	0	0	0	0	0	0	0	0
7574	0	0	0	0	0	0	0	0	0.7	0	2.5	0
7575	0	0	0	0	0	0	0	0	0.8	0	3	0
7586	1	1	1	1	0	0	1	1	0	0	1	0
7572	30	6	30	6	0	0	30	6	0'	0	0	0
7594	0	0	0	0	0	0	0	0	0	0	0	0
7595	9	3	9	3	0	0	9	3	0	0	2	0
7597	1	1	1	1	0	0	1	1	0	0	2	0
0999	80	40	40	14	0	0	40	14	0	0	0	0
Total	138	31	98	31	0	0	98	31	3	0	42	0

Appendix I. Range Monitoring. Studies

An essential part of any grazing management plan involves monitoring to determine if resource objectives are being met. The type(s) of monitoring study(ies) Will vary depending on the resource objectives. Here is a brief description of the more common studies used for rangeland monitoring in the Prineville District.

1. Utilization

A livestock use area is examined after grazing to determine the amount of use, expressed as a percent of current year's growth incurred on plants normally grazed by livestock. The examination can be for a single species or for several species, depending on resource objectives. The study area may consist of one or more transects in the use area or could involve mapping the entire use area to determine livestock grazing patterns.

2. Actual Use

The livestock operator submits a detailed record at the close of the grazing period showing how the allotment was used. Actual use may not correspond exactly to authorized use because of factors such as late turnout, removal of sick animals, fewer total numbers than authorized and stray animals either in or out of the allotments.

3. Climate

An index based on crop year precipitation has been developed by the Squaw Butte Field Station and provides a good indicator of forage growth. Records from NOAA weather reporting stations provide adequate coverage for most areas, but site-specific studies (i.e., a recording hydrothermograph installed in an allotment) may be used as needed.

These three studies, conducted on a regular basis, monitor major causative agents of change in vegetation and can also be indicative of trends in ecological condition. Three other kinds of studies are also used.

4. Photographic

Color photographs are taken at three to five year interval at permanently established locations representative of th allotment. General change in vegetative composition and/or vigor can be observed. Aerial photography also may be used and can be particularly valuable in monitoring riparian areas.

5. Population Studies

Methods of sampling plant populations have been developed which result in data of varying statistical reliability. Studies such as nested frequency give an indication of the occurrence of a species at a location. Line intercept and belt transect studies may be used to determine the relative composition and/or cover percentage of each species in a given population. Although they are time consuming and costly, these studies can be used to detect subtle changes in ecological condition of an allotment and to provide a statistical basis for future analysis.

6. Reinventory

Allotments may be reinventoried for ecological condition (seral stage) using the Ecological Site Inventory (BLM Handbook H-441 O-I). Ecological condition is normally estimated by comparing an ocular estimate of the relative plan species composition with the standard provided by the appropriate site guide, but detailed measurements ar taken as needed. This is a long-term study which, normally, will be conducted only when other studies indicate that a full condition class of change may have occurred or when a long enough period of time (perhaps 15 years) has elapsed that it is considered desirable to update the ecological condition data base.

Appendix J. Zone 3 Lands Potentially Suitable for Disposal

Lands in Crook County

Township	Range	Section	Subdivision	Public Acres
13s	15E	3	NWSW	40.00
13s	15E	15	N W N W N S W	120.00
13s	15E	24	SESW SWSE EE	240.00
13s	15E	25	WSW NENW WNE	200.00
13s	15E	26	ESW SENE SE	280.00
13s	15E	27	NWNE	40.00
13s	15E	28	SESW SE	200.00
13s	15E	32	NWNE	40.00
13s	16E	19	L3 NESW NENW NE	281.34
13s	16E	20	SS SN NWSW	360.00
13s	16E	21	SWNW NNE SENE NESE	200.00
13s	16E	29	SW NENW NWNE	240.00
13s	16E	30	SE	160.00
13s	16E	32	W	320.00
14s	14E	9	ESE	80.00
14s	14E	10	SENE	40.00
14s	14E	24	NN SWNW	200.00
14s	15E	18	NSE SNE	160.00
14s	15E	30	NNE SSE	160.00
14s	15E	32	ESE ENW NE	320.00
14s	16E	1	L1-3 SNE SE	322.46
14s	16E	12	E SW SWNW	520.00
14s	16E	14	SESE NN WSW SWNW	320.00
14s	16E	22	NENE	40.00
14s	17E	26	NWSE	40.00
14s	17E	34	NWNW	40.00
15s	15E	8	E	320.00
15s	16E	2	SE SESW	200.00
15s	16E	10	NENE	40.00
15s	16E	14	ESE SWNE SENW	160.00
15s	16E	18	ESE	80.00
15s	16E	22	E	320.00
15s	16E	26	NN	160.00
15s	17E	2	L2	41.89
15s	17E	12	SESW SWSE	80.00
15s	17E	14	NSW SWSW	120.00
15s	17E	18	L4	38.44
15s	17E	20	WSW SWNW	120.00
15s	17E	24	NENE	40.00
15s	18E	6	SSE	80.00
15s	18E	8	NNE WNW	160.00
15s	18E	18	NESW	40.00
16S	14E	11	SENE	40.00
16S	15E	3	ESW SWSE	120.00
16S	15E	5	SSE NESE	120.00
16S	15E	8	NE	160.00
16S	15E	9	NW	160.00
16S	15E	10	SESE	40.00
16S	16E	2	L1	37.28
16S	16E	4	L1-3 SENE	161.86
16S	16E	6	L5 NWSE SESE	119.04
16S	16E	13	SSE	80.00
16S	16E	18	NESW SENE	80.00
16S	16E	22	s w s w	40.00
16S	16E	23	ESW SWNE NENW	160.00

Township	Range	Section	Subdivision	Public Acres
16S	16E	24	SSE	80.00
16S	16E	25	ALL	640.00
16S	16E	26	SESE NSE NESW ENW NE	400.00
16S	16E	27	SESW ENE	120.00
16S	18E	10	NN SENE	200.00
16S	18E	12	s s	160.00
16S	18E	13	SSE	80.00
16S	18E	14	E ENW NESW	440.00
16S	18E	15	SWNW SW WSE	280.00
16S	18E	19	LI-4 SNENE SENE EW	344.48
16S	18E	20	NNW SWNW SWSW	160.00
16S	18E	21	NNE SWNE NENW SESE	200.00
16S	18E	22	SENW	40.00
16S	18E	23	SENE	40.00
16S	18E	24	SNW SENE	120.00
16S	18E	28	SESE	40.00
16S	18E	31	SWNE	40.00
16S	18E	32	NESW	40.00
16S	19E	4	LI-4 SN S	596.00
16S	19E	10	NWSW WNESW	60.00
16S	19E	12	NWNW SWSE	80.00
16S	19E	18	SESE	40.00
16S	25E	3	NSW	80.00
16S	25E	15	ESE	80.00
16S	25E	22	NENE	40.00
16S	25E	23	NWNW	40.00
17s	17E	20	SENW	40.00
17s	18E	1	L4 SWNW SW	239.40
17s	18E	2	L3 SENW SWNE ESW WSE	278.38
17s	18E	11	SNE SENW	120.00
17s	18E	12	NNW SWNW	120.00
17s	18E	30	SESE	40.00
17s	18E	31	NENE	40.00
17s	18E	32	NNE	80.00
17s	19E	9	WNE SSW	160.00
17s	19E	10	NENE	40.00
17s	19E	14	SS NESE SENE	240.00
17s	19E	15	NNE NWNW SS	280.00
17s	23E	4	SWNW	40.00
17s	24E	34	ENE	80.00
17s	25E	8	SWNE SENW SNE	160.00
17s	25E	12	NWSW	40.00
17s	25E	14	NWNE SSE	120.00
17s	25E	21	NESW NWSE	80.00
17s	25E	28	NN SWSE	200.00
17s	25E	32	SWNE SNW	120.00
18S	16E	7	NWNE	40.00
18S	16E	15	SE SNE NWSW	280.00
18S	16E	23	s w s w	40.00
18S	16E	27	NW NESE	200.00
18S	18E	6	L1	35.30
18S	18E	18	SSE NESE	120.00
18S	18E	21	NWSE	40.00
18S	19E	19	ENE	80.00
18S	19E	20	SWNW WSW SESW	160.00
18S	19E	29	NNW	80.00
18S	19E	30	NWSE	40.00
18S	19E	31	L1	39.22
18S	19E	32	ENE	80.00
18S	20E	15	NW	160.00
18S	20E	17	NWNW	40.00
18S	20E	18	L1	37.72

Township	Range	Section	Subdivision	Public Acres
18S	20E	39	NENW WNE NWSE	160.00
19s	18E	1	L2	40.45
19s	18E	2	L3 SNW	121.13
19s	18E	12	SENE	40.00
19s	19E	1	NESE ESW	120.00
19s	19E	5	L3 SNW NWSW	159.06
19s	19E	6	L5-6 SENW NESW SNE NSE	318.87
19s	19E	7	L4	39.62
19s	19E	11	ESE	80.00
19s	19E	12	NENW SNW SWSE	160.00
19s	19E	17	SENE SWNW	80.00
19s	19E	21	ESW WSE	160.00
19s	19E	23	SENE	40.00
19s	19E	24	SWNW	40.00
19s	19E	25	SNW NWSE	120.00
19s	19E	26	SNE WSE SW	320.00
19s	19E	27	SE	160.00
19s	19E	30	E S W	80.00
19s	19E	33	NE	160.00
19s	19E	35	NENW NWNE	80.00
19s	20E	4	NWSE	40.00
19s	20E	6	L7	39.85
19s	20E	8	SENW SWSW ESW SWSE	200.00
19s	20E	9	NWSE NENE	80.00
19s	20E	17	WNE ENW	160.00
19s	20E	35	NESE	40.00
19s	23E	12	SW WSE NESE	280.00
19s	24E	2	LI-4 SN S	636.26
19s	24E	14	N NS SESE	520.00
19s	24E	22	ALL	640.00
20s	22E	14	s w s w	40.00
20s	22E	15	SWNE	40.00
20s	22E	23	SNW NWNW SWSE	160.00
20s	22E	26	W E	160.00
20s	22E	35	WNE NWSE	120.00
20s	24E	8	SSW SESE	120.00
21s	22E	3	L2	41.81
Subtotal of acres in Crook County				22,509.86

Lands in Deschutes County

Township	Range	Section	Subdivision	Public Acres
14S	11E	23	SWNE	40.00
14S	13E	29	L1 L4 NENW	80.69
19s	16E	2	SWNE	40.00
20s	16E	22	WSE	40.00
20s	16E	24	SE	160.00
20s	18E	2	SENE	40.00
20s	18E	7	SWNE NWSE	80.00
20s	18E	10	SWNE	40.00
21s	10E	21	NE	160.00
21s	10E	22	NNE	80.00
21s	10E	26	NENW	40.00
21s	10E	33	WSE	80.00
21s	10E	34	SWSE ESE	120.00
21s	11E	29	s w s w	40.00
21s	20E	24	NNE	80.00
22s	10E	3	LI-2	80.83
22s	10E	5	NSE	80.00
22s	10E	9	NE	160.00
22s	10E	10	NWNW	40.00
22s	10E	11	LI-4 L6-7 ENWSWSW WNESWSW SENESWSW NNESESWSWNESESW NESWSESW	46.25
22s	10E	14	133 136-139 141-147 149-154 156-159 161 SESW NENWNW	108.34
22s	10E	14	L14 44-45 52 62 64-65 75 82-84 88-89 94-95 100 102-103 108	154.64
Subtotal of acres in Deschutes County				1,790.75

Lands in Harney County

Township	Range	Section	Subdivision	Public Acres
19s	25E	8	NWSE SESE	80.00
19s	25E	15	E	320.00
19s	25E	28	SS NESE	200.00
19s	25E	32	N SW	480.00
Subtotal of acres in Harney County				1,080.00

Lands in Klamath County

Township	Range	Section	Subdivision	Public Acres
23S	09E	2	L4 SENW SWSW	119.62
23S	09E	11	NNW	80.00
23S	09E	20	NSW SESW WSE	200.00
23S	09E	21	SN NSW SESW SE	440 .oo
23S	09E	22	s s w	80.00
23S	09E	27	N SW NSE	560.00
23S	09E	28	E	320.00
23S	09E	32	WNE SENW ESW SE	360.00
23S	09E	33	NSW SENW NNE SWNE NSENE SWSENE NNWNESE WSESENE	280.00
23S	09E	34	NNW	80.00
23S	10E	33	NWNE ENW NWNW	160.00
23S	10E	4	L5 WWNWSW NWNWSWSW	12.50
Subtotal of acres in Klamath County				2,692.12
TOTAL Acreage of Public Lands in Zone 3				28,072.73

Appendix K
Summary of Livestock Grazing Management Decisions (Brothers Portion)

Allotment No.	Name	Cat. [A]	BLM Acres	Wildlife AUMs
0001	ALASKA PACIFIC	I	2,172	30
0003	HAMPTON	M	56,873 [2]	152
0004	MINERS FLAT	M	2,908	52
0006	POST	M	1,720	22
0007	RIVER	C	240	4
0009	COLD SPRINGS	M	37,134	64
0012	WINDMILL	C	920	4
0013	SHEEP MTN. COMM.	M	6,332 [2]	37
0014	SHEEP MTN. INDIV.	M	1,820	18
0016	INDIAN CREEK	I	1,831	41
0017	BONNIEVIEW	C	812	20
0018	JUNIPER SPRINGS	I	1,625	44
0019	IBEX BUTTE	I	12,230	112
0020	LOWER 12 MILE TABLE	I	9,722	91
0021	MID TH TWELVEMILE CK	M	1,795	14
0022	LAUGHLIN	I	7,672	18
0023	ANGELL	I	1,517	11
0024	UPPER BUCK CREEK	M	6,991	112
0025	BUCK CREEK FLAT	I	5,850	47
0026	HUMPHREY	M	4,936	103
0027	UPPER POCKET COMM.	M	4,853	93
0028	FERIAN	C	446	11
0029	JIMMY MCCUEN	C	865	19
0033	CONGLETON	M	2,128	79
0034	LOWER POCKET COMM.	M	1,968	31
0035	BULGER CREEK	M	70 [2]	
0036	DELORE	C	80	10
0037	FOSTER,V.	C	160	4
0038	CAVE	I	3,035	23
0039	PAULINA	M	1,642	28
0041	LAYTON	M	1,418	24
0042	OWENS WATER COMM.	I	4,389	15
0043	BARNEY BUCK CREEK	I	5,150	CO
0044	G.I.	I	136,346 [2]	285
0045	EAST MAURY	I	5,133	58
0047	LISTER	M	77,174	92
0048	DURGIN	C	324	10
0049	MCCULLOUGH	C	163	7
0050	RABBIT VALLEY	M	15,160	331
0051	PAULINA CREEK	M	2,622	65
0052	MILLER	C	120	2
0053	NORTH FORK	M	11,846	244
0054	BEAVER CREEK	M	880	19
0056	DAGIS LAKE	M	11,401	26
0058	COYOTE SPRINGS	M	4,418	89
0059	DRY LAKE	M	610	A
0060	FLAT TOP BUTTE	I	1,706	3;

Active Preference (AUMs)		Grazina Svstem [B]		Allotment Management Plan	Allotment [C]
Existing	Proposed	Existing	Proposed	Completed [1]	Objectives
123	98	s/s	DR		A
6,648'	6,648[2]	RR	RR,DR	Yes	A,B,E,F,G
201	291	RR,DR	RR,DR		A,B,E,G
98	118	S/S DR	DR		A
0	0	REST	REST		D
2,142	2,554	RR	RR,DR[9]		A,B,C,D,G
70	70	DR	DR		B,E,F
288[2]	478[2]	RR.DR EX	RR DR EX	Yes	A,B,C,D
254[3]	315[3]	DR,FFR	DR		A,B,C,D
81	93	DR	DR	Yes	A,B,D
109	60	FFR	DR		B
165	165[8]	S/S	RR		A,B,C,E,G
910	910	S/S	RR		A,B,C,E,G
684	684	S/S	RR		A,B,C,E,F,G
193	193	D	DR		B
483	600	E,. . .	DR		A,B,E,G
624	644[8]	F FFR	DR		A,F,G
		DR,R	DR		A,B,E
271	325	DR	RR		A,B,E,F
635	562	DR,FFR,E	DR,E[7]		A,B,D,E
274	330	DR	DR	Yes	A
30	30	FFR	DR		B
0	83	D	DR		B
197	197[8]	RR	RR	Yes	A
160	160	RR	RR	Yes	A
5[2]	5[2]	DR	DR		B,E,G
12	12[8]	S/S/F	DR		B
15	15	FFR	DR		B
165	194	s/s	DR		A.D
87	103	DR,S/S/F	DR		A
123	111	S/S/F,FFR	DR		A
241	293	S/S	DR		A,B,C
242	409	DR[3]	RR		A,B,E,F
11,166[2]	10,490[2]	DR	DR,RR,EX		A,B,C,E,F,G
295	326	E,S/S/F	DR		A
2,155	2,614	RR,DR,S/S/F,EX,FFR,E[7]	RR,DR,EX,E[7]	Yes	A,D
39	39	FFR	DR		B
10	5	FFR	DR		B
548	493	S/S,EX	DR,EX		A
125	148	S/S	DR		A,D
22	13	E	DR		B
811[2]	811[2,8]	RR,DR,EX,FFR	DR,RR,EX	Yes	A,D
82	82	E,S/S/F	DR		A
487	868	RR,E	RR		A,B,D,E
404	404	E	DR		A
33	33	E	DR		A,B
80	80	E	DR		A,C

Allotment No.	Name	Cat. [A]	BLM Acres	Wildlife AUMs
0062	BENNETT FIELD	M	1,314	38
0064	CAMP CREEK COMM.	I	17,861	88
0066	BUTLER	C	80	1
0069	INDIAN	C	160	1
0070	CLOVER CREEK	I	8,770[4]	25
0071	COFFEE BUTTE	M	4,266	27
0072	MILTENBERGER	M	1,690	
0075	WEIGAND	C	160	2
0076	WEST PINE CREEK	C	481	3
5001	WHITAKER	C	120	1
5002	SANOWSKI	C	40	1
5003	BROADDUS-CARTER	C	15	5
5004	LAMB	C	63	5
5006	EMMRICH	C	107	5
5007	HARSCH	M	506	6
5010	HARRINGTON	C	80	
5018	WIERLESKE	M	892	5
5022	AIRPORT	M	597	4
5024	COUCH	C	768	7
5029	CLAYPOOL	C	80	1
5030	KEYSTONE	C	296	4
5031	MAYFIELD-HARRIS	C	1,509	5
5032	BARRETT	C	238	4
5050	GREY BUTTE	M	809	3
5051	SHERWOOD CANYON	M	1,117	5
5052	SMITH ROCK	C	174	3
5061	MCWEIZZ	C	6,065	
5064	WILLIAMS	C	763	26
5065	LOWER BRIDGE	C	5,521	107
5066	PINE RIDGE	C	358	5
5067	FISHER	C	389	4
5068	STEVENS-FREMONT	C	285	5
5069	SQUAW CREEK	C	192	4
5070	LAFOLLETTE BUTTE	C	3,875	54
5071	ODIN FALLS	C	3,869	40
5072	STRUSS	C	2,294	10
5073	CLINE BUTTE	I	4,422	15
5074	FRYREAR BUTTE	I	6,994	20
5075	DESERT SPRINGS	M	1,947	10
5078	HOME RANCH	I	3,831	
5079	WHISKEY STILL	M	1,034	4
5080	MASTON	M	3,382	13
5081	PAULUS	C	152	4
5082	BULL FLAT	C	116	1
5086	LONE PINE CANYON	C	120	1
5088	BURNS-MONTGOMERY	C	160	3
5089	KNOCHE	C	185	1
5090	ZEMLICKA	C	344	2
5092	RED CLOUD	M	717	4
5093	CRONIN	M	321	4
5094	BROWN	C	493	8
5096	FOSTER	C	200	2
5097	RUSSELL	C	277	7
5107	CAIN FIELDS	C	114	3

Active Preference (AUMs)		Grazing System [B]		Allotment Management Plan	Allotment [C]
Existing	Proposed	Existing	Proposed	Completed [1]	Objectives
68	68	S/S	DR		B,D
966	966 [8]	DR,E [7]	RR,E [7]		A,C,D,E,G
13	5	FFR	DR		B
11	11	FFR	DR		A
617 [4]	617 [4]	RR	RR,DR [4]		A,B,C
468	609	S/S/F	DR		A
82	82	E	SD		B
15	15	FFR	DR		B
45	45	FFR	DR		B
7	7	E	SD		B
10	10	E	SD		B
2	2	E	SD		B
6	6	E	SD		B
0	20	E	SD		B
19	19	S/S	SD		B
2	2	S/S	SD		B
49	49	S/F	SD		B
49	49	E	SD		B
0	30	E	SD		B
4	4	FFR	SD		B
30	30	FFR	SD		B
124	124	S/F	DR		B
24	24	FFR	SD		B
28	28	S/S	SD		B
51	51	S/S	SD		B
9	9	S/S	SD		B
0	348	E	SD		B
44	44	S/S	DR		B
310	310	D	DR		B
34	34	S/S	SD		B
0	14	E	SD		B
0	46	E	SD		B
0	17	E	SD		B
0	258	E	DR		B
0	252	E	SD		B
143	143	E	DR		B
202	202	R	DR		G
498	498	R	DR		G
112	112	S/S	DR		B
193	193	E	DR		G
111	111	E	DR		B
209	209	S/S	DR		B
14	14	E	SD		B
0	7	E	SD		B
5	5	E	SD		B
17	17	E	SD		B
6	6	S/S	SD		B
18	18	E	SD		B
33	33	E	SD		B
19	19	E	DR		B
40	40	S/S	SD		B
24	24	S/S	SD		B
16	16	S/S	SD		B
36	36	E	SD		B

Allotment No.	Name	Cat. [A]	BLM Acres	Wildlife AUMs
5108	ZELL POND	M	1,228	4
5109	HOHNSTEIN-TATTI	M	5,096	17
5110	BRUCKERT	C	126	4
5111	COOK	C	1,860	8
5112	DRIVEWAY	M	3,058	10
5113	HACKER-HASSING	M	4,019	13
5114	WEIGAND,N.	M	2,651	9
5115	ALLEN	M	3,554	8
5116	REDMOND AIRPORT	M	5,467	17
5117	PIPELINE	M	8,227	21
5118	CRENSHAW	M	7,267	21
5119	BLACKROCK	C	254	
5120	HUTTON	M	4,818	13
5121	OERTLE	C	2,629	9
5122	HOWARD	C	1,394	4
5124	SMEAD	C	755	2
5125	MAYFIELD POND	M	4,549	13
5127	POWELL BUTTE	M	13,598 [2]	31
5130	PILOT BUTTE	M	1,394	26
5131	MCCLELLAN	M	861	15
5133	LONG HOLLOW	C	300	2
5134	STEARNS	I	18,407	106
5135	DRY CREEK	M	7,055	67
5136	DAVIS	M	3,584	34
5137	PRINEVILLE DAM	I	3,925	
5138	PLATEAU	I	5,477	15
5139	DUNHAM	I	6,128	37
5140	SALT CK.-ALKALI BUTTE	I	9,783 [4]	31 [4]
5141	SANFORD CREEK	I	3,958 [4]	6
5142	CAREY	I	1,129	20
5145	EAGLE ROCK-BAILEY	I	4,766	45
5149	BEOLETTO	M	968	24
5176	MCCABE	C	350	
5177	REYNOLDS	M	1,838	15
5178	GRIZZLY MTN.	C	701	3
5179	LYTLE CREEK	C	120	1
5180	GOLDEN HORSESHOE	C	197	3
5182	F. JONES	M	1,027	25
5183	RAIL HOLLOW	C	115	2
5198	LAIER-GOVE	C	529	3
5201	ALFALFA MKT.	M	2,436	8
5203	WILTZE	C	335	1
5204	SINCLAIR	M	630	3
5205	DODDS ROAD	M	2,287	8
5206	ARNOLD CANAL	C	2,791	16
5207	MICHAELS	M	4,066 [4]	14 [4]
5208	BARLOW CAVE	I	9,101	84
5209	LAVA BEDS COMM.	M	16,354	80
5210	HORSE RIDGE	I	22,152	107
5211	PINE MOUNTAIN	M	5,323	21
5212	MILLICAN	I	32,560	106
5213	RAMBO	M	15,997	53
5214	WILLLIAMSON CREEK	I	12,905	44
5215	COATS	M	10,514	28

Active Preference (AUMs)		Grazing System [B]		Allotment Management Plan	Allotment [C]
Existing	Proposed	Existing	Proposed	Completed [1]	Objectives
75	75	E	SD		B
262	262	S/F	DR		B
35	35	S/F	SD		B
0	49	E	SD		B
100	138	R	DR		B
99	99	R	DR		B
177	177	S/S	DR		B
110	110	S/S	DR		B
228	228	R	DR		B
513	513	RR	DR	Yes	B
392	405	DR	DR		B
0	24	E	DR		B
254	254	R	DR		B
120	120	DR	DR		B
68	68	R	DR		B
23	23	R	DR		B
305	305	**DR**	DR		B
700[2]	700[2]	**DR**	DR		B
84	84	S/S	SD		B
75	75	E	SD		B
17	17	FFR	SD		B
852	852	DR	DR		E,G
334	334	DR	DR		R
213	234	**DR**	DR,EX		B
139	139	**DR,EX**	DR		C,D
252	252	**DR**	DR	**Yes**	A,C
323	338	**DR**	DR	**Yes**	A,C
657[4]	769[4]	DR,E	DR		A,C,D
152	152	**DR**	DR	**Yes**	A,C,D
46	46	S/S	DR		A,C
262	262	RR	RR	**Yes**	A,C,D
55	55	S/S/F	R		B
10	22	S/S/F	E		B
101	101	E	SD		B
69	69	E	SD		B
8	8	S/S	SD		B
14	14	S/S	SD		B
77	77	E	SD		B
0	10	E	SD		B
15	15	FFR	SD		B
141	141	S/S	DR		B
31	31	DR	DR		B
38	38	DR	SD		B
75	75	DR	DR		B
0	87	S/S	DR		B
179[4]	179[4]	R	SD		B
600	600	**DR**	DR		A,E
729	508	S/S	DR		B
1,624	1,843	**DR**	DR		A,G
320	320	DR	DR	**Yes**	B
1,705	2,800	**DR**	DR		A,G
605	605	**DR**	DR	**Yes**	B
1,007	1,007	**DR**	DR		A,G
853	1,115	DR	DR		B

Allotment No.	Name	Cat. [A]	BLM Acres	Wildlife AUMs
5216	GRIEVE	C	84	1
5229	KLOOTCHMAN	C	210	
5230	BIRCH CREEK	I	2,966	6
5231	WEST BUTTE	I	11,386	50
5232	NYE	I	8,627	34
5233	SCOTT	I	4,625	5
5234	HAUGHTON	I	18,437	30
5235	MOFFITT	I	30,506	107
5236	BEAR CREEK	I	1,750	4
5237	BROTHERS	I	28,465	65
5238	ZX	I	76,498	223
5239	GRASSY BUTTE	M	25,701	50
5240	FEHRENBACHER	M	6,605	7
5241	RICKMAN-MCCORMACK	I	7,991	23
5242	SPRING CREEK	I	6,245	28
5243	BRIGHT	M	6,269	22
5245	RAM LAKE	I	12,796[2]	51[2]
5246	HATFIELD	C	122	
5247	LIZARD CREEK	M	3,263	7
5248	POTHOOK	C	2,454	15
5249	MCCORMACK HOME RANCH	C	1,274	13
5250	COFFELT	M	440	2
5251	96 RANCH	I	6,771	19
5252	MEISNER	C	124	4
5254	BARBWIRE	C	100[2]	0[2]

Active Preference (AUMs)		Grazing System [B]		Allotment Management Plan	Allotment [C]
Existing	Proposed	Existing	Proposed	Completed [1]	Objectives
4	4	S/S	SD		B
26	26	FFR	SD		B
137	137	DR,E[7]	DR		A,C,D
806	942	DR	DR		A,C
422	422	DR,E[7]	DR	Yes	A,C
255	255	DR	DR		A,C
1,061	1,552	DR	DR	Yes	A,C,G
2,334	2,830	RR	DR	Yes	A,G
98	200	DR[6],E[7]	SD		A,C
2,429	3,008	DR	DR	Yes	A,G
7,100	7,100	RR	RR	Yes	A,G
3,018	4,100	DR	DR	Yes	B
492	845	DR	DR		B
398	567	DR	DR		A,C
401	401	DR	DR	Yes	A,C
643	1,000	S/S	DR		B
724[2]	724[2]	DR	DR		A,G
5	5	DR	DR		B
280	280	R	DR		B
140	140	DR	DR		B
54	68	DR	DR		B
20	20	R	DR		B
482	482	DR	DR		A,C
34	34	E	SD		B
10[2]	10[2]	FFR[2]	DR		B

[1]Also includes allotment agreements
[2]Changed due to land exchange with State of Oregon
[3]Correction - previous RPS in error
[4]Change in allotment land base
[5]New allotment as a result of 4, above
[6]Change in operation necessitated change in management
[7]"Early in and out" use as a riparian treatment
[8]Mgt. decision to not change from current active preference
[9]DR added as a change in seeding mgt.

[A]Categorization
I - Improve (shaded entries)
M - Maintain
C - Custodial

[B]Grazing Systems
RR rest rotation — S/S/F spring/summer/fall
DR deferrejd rotation — S/F spring fall
R rotation — W winter
D deferred — SD short duration
E early — EX exclusion
S/S spring/summer — jFFR fenced federal range

[C]Allotment Objectives
A Improve ecological condition
B Maintain ecological condition
C Stabillze of in-prove watershed condition
D Improve riparian habitat
E Maintain or improve winter range for mule deer and/or antelope
F Maintain or improve sage grouse habitat
G Increase availability of livestock forage

APPENDIX L. Water Quality Measurements, Brothers Portion

Stream	River Mile	Temperature °F Air	Temperature °F water	Coliform count (Total)	Turb.	Spec.[1] Cond.	Dis. 02 mg/l	ph	CO2 mg/l	Total Alkalinity mg/l Ca	Nitrate CO2 mg/l
Crooked River (lower)	59.75	63	50	...	...	185	12	...	...	100	
	65.0	60	50	...	...	180	11.5	...	...	90	...
	71.75	59	49	...	...	180	11.5	...	...	90	...
	65.0	81	59	...	2.3 ft	...	16	8.5	4	...	0
	71.7s	82	55	...	2.3 ft.	...	...	7.7	8	..	0
	65.0	...	...	8	...	...	...	...	...	...	...
	71.75	...	...	18	...		...	...	...	...	...
Bear Creek	...	...	(53-82)[2]	...	...	...	...	...	...	...	...
	4 25-8.0	...	(53-79)	...	...	...	...	...	...	...	
	..	...	(65.82)	...	...	...	...	...	...	...	...
	10.-28.25	...	(59.82)	...	...	...	...	...	...	...	
	...	...	(61.84)	...	...	...	...	...	...	...	...
	10.5	84	76	...	...	650	11	...	...	300	...
	12.0	69	68	...	...	640	15	...	...	310	...
	11.25	68	69	...	...	640	12	...	...	300	...
	10.5	68	67	...	...	660	14	...	...	300	...
	2.0	68	68	...	...	640	13	...	...	320	...
	12.0	85	67	...	clear	...	...	8.1	4	...	0
	11.25	85	67	...	clear	...	...	77	16	...	0
	10.5	85	62	...	clear	...	15	7.6	16	...	0
	2.0	90	64	...	clear	...	12	7.5	16	...	0
	20	...	...	11	...	...	...	...	...	...	
	10.5	...	...	4	...	...	...	...	...	...	...
	11.25	...	...	22	...	...	...	...	...	...	...
	12.0	...	...	9	...	...	...	...	...	...	...
Eagle Creek	0.5	...	72	...	...	600	...	..	...	...	...
	0.5	77	65	...	...	610	...	...	...	310	...
	0.5	62	53	32	clear	...	5	7.4	28	...	0
Crooked River (upper)	124 7	70	69	...	...	700	12.5	...	...	350	
	124.7	85	68	58	4.5	ft.	...	11	7.4	...	0
	114.0	85	68	36	4.5 ft.	...	10	7.9	24	370	0
	95.0	87	72	23	4-5 ft	...	13	7.9	20	280	0
North Fork Crooked River above pool	6.0-8.5	...	(50-56)	...	clear	...	...	...	...	...	...
	8.5-18.5	...	(46-74)	...	clear	...	...	...	...	...	...
	13.0	...	73	...	clear	...	1	...	...	...	...
below riffle	...	...	73	...	clear	...	8	...	...	...	...
end of pool	13.0	...	70	...	clear	...	6	...	...	...	...
end of pool	18.0	...	64	...	clear	...	5.6	...	...	...	...
side of pool	..	...	...	...	clear	...	1	...	..	...	...
head of pool	18 0	...	64	...	clear	...	1	...	...	...	...
end of pool	18.0	...	63	...	clear	...	a	...	...	...	...
	13.0	...	...	35	clear	...	...	...	...	...	...
	13.0	71	68	...	clear	170	12	..	...	100	...
	13.0	80	74	11	clear	...	11	7.5	8	...	0
	18.0	64	57	...	clear	...	12	7.8	...	...	0
	18.0	74	57	32	clear	160	...	...	100	...	...
Sheep Rock Creek	...	...	(45.50)	...	clear	...	...	..	...	...	
	6.25	74	53	...	...	185	12	...	...	110	...
	6.25	76	46	...	...	...	12	7.8	...	...	0
	6.25	...	...	8	...	...	...	...	...	...	...
Committee Creek	0-2.0	...	(62.74)	...	clear	...	...	...	...	...	
	2.5	73	64	...	...	230	12	...	...	140	...
	2.5	76	51	...	...	...	12	7.6	.I	...	0
	2.5	...	...	48	...	...	...	...	...	...	...
Rough Canyon Creek	0-75	...	(49-50)	...	clear	...	...	...	...	...	
	0.75	77	63	...	..	215	6	6.8	...	120	0
	0.75	...	...	302	...	...	...	...	...	...	
Hail Creek	.25-.75	...	(44-46)	...	clear	...	...	...	...	...	
	0.75	72	65	...	...	220	10	7.5	...	120	0
	0.75	...	...	27	...	...	...	...	...	...	...
Fox Canyon Creek	25.46	...	46	...	clear	...	...	...	...	...	...
	1.25	62	60	...	...	170	6	...	...	90	
	1.25	81	59	28	...	...	10	72	16	...	0
Camp Creek (main stem)	46	61	58	...	...	435	...	...	...	160	...
	7.9	65	58	...	8.10 ft	440	...	...	...	190	...
	4.6	76	59	...	...	...	11	8.4	...	...	...
	7.9	75	54	...	...	...	16	8.1	...	...	...
	4.6	...	...	89	...	...	...	...	...	...	...
	79	...	...	40	...	...	...	...	...	...	...
	10.1	52	54	63	4NTU	800	12	8.5	20	250	...

Stream	River Mile	Temperature °F Air	Temperature °F Water	Coliform Count (Total)	Turb.	Spec. Cond.[1]	Dir. O_2 mg/l	ph	CO_2 mg/l	Total Alkalinity mg/l Ca	Nitrate CO_2 mg/l
Camp Creek (west)	1 . 4	54	56	..	---	650	11	---	---	315	---
	3.0	63	58	..	...	790	11	---	---	380	---
	4 75	58	58	...	...	775	11	---	---	375	---
	14	80	60	...	clear	...	13	7.6	10	---	0
	3.0	82	62	---	clear	...	13	7.6	16	...	0
	475	84	63	...	clear	...	13	7.7	20	...	0
	14	---	---	41	...	...	..	...	...	...	---
	3.0	---	...	158	...	---	...	...	...	.	---
	4.75	---	---	118	...	...	---	...	...	...	---
South Fork Crooked River	0-36.0		(60-70)	...	clear	...	...	---	...	...	---
	...	---	(55-74)	...	...	---	...	---	...	...	---
	14	56	59	...	...	480	7	...	...	245	---
	11.8	60	64	...	...	560	10	---	...	245	---
	20.0	69	65	...	riffle-pool	460 600	11.5	---	--- ---	270	---
	14	---	...	89	...	...	---	...	---	---	---
	11.8	---	...	131	...	...	...	...	...	...	---
	20.0	---	...	25	...	---	---	...	...	...	---
	1.4	---	---	...	...	...	...	8.5	190	...	0
	11.8	---	...	...	---	...	---	8.1	190	---	0
	20.0	---	...	...	...	...	...	7.6	80	...	0
Paulina Creek	0-10.65		(62.65)	...	clear	...	---	...	...	...	---
	...		(63.67)	...	...	...	...	...	...	...	---
	0.0		61	...	---	220	---	...	...	...	---
	0.0	---	61	...	---	220	---	...	...	...	---
	8.5	68	54	...	225	...	10	---	...	130	---
	0.0	75	60	...	---	210	...	...	...	110	---
	8.5	77	55	10	...	---	11	7.7	12	...	0
	0.0	87	62	...	...	...	7	...	8	...	0
	00	73	60	83	...	...	...	8.0	---	---	---
Roba Creek	20.36	--	(46-52)	..	---	---	...	---	---	...	---
	3.16	68	54	...	clear	...	10	7.7	...	100	---
	3.16	...	75	---	...	145	...	...	...	...	---
	3 16	..	57	...	...	170	8.5	...	...	80	---
	3 16	83	61	150	...	...	11	...	12	---	0
Indian Creek	.25-2.0	76	(59.66)	...	clear	...	...	...	..	...	---
	0.25	---	64	..	---	225	...	---	...	...	---
	0.25	66	59	...	---	240	5	---	---	130	---
	0.25	77	56	130	...	---	10	7.4	---	---	0
East Burnt Log Creek	-		(59.70)	...	clear	---	...	---	...	...	---
	0.25	---	66	---	...	205	...	---	...	...	---
	0.25	78	62	200	---	...	10	7.6	12	---	0
	0.25	...	...	...	---	...	...	---	...	170	---
West Burnt Log Creek	---	---	(62-79)	...	clear	---	...	...	...	...	---
	0.15	---	71	...	...	250	...	...	...	...	---
	0.25	78	55	240	---	...	12	7.9	16	...	0
	0.25	...	---	.	...	...	...	...	...	150	---
Beaver Creek	9 25-10.9		(62-73)	...	clear	...	...	...	---	---	---
	9 75	...	65	...	---	385	...	---	...	...	---
	9 75	---	66		...	320	...	---	---	...	---
	9.7s	79	71	...	..	500	...	---	...	230	---
	9 75	...	62	...	..	205	...	...	...	...	---
	975	...	65	..	...	255	---	...	...	...	
	9.75	79	69	---	..	340	...	...	...	160	---
	9.75	73	62	212	---	...	10	7.5	10	...	0
NF Wolf Creek	A.25	--	62	..	..	---	---	---	---	...	---
	4.25	74	74	...	clear	120	...	---	---	70	---
	4.25	78	61	1 4	...	...	7	6.0	16	...	0
NF Beaver Creek	6.0	61	64	---	8-10 ft	275	7	---	...	150	---
	6.0	84	62	.	8-10 ft	---	11	7.2	20	---	0
	6.0	...	..	39	...	..	...	---	...	...	---
Beaver Dam Creek	025	60	61	...	---	180	10	...	...	90	---
	0.25	84	74	---	clear	---	10	7.8	8	...	0
	0 25	---	...	20	---	...	---	---	...	...	---
Merwin Res., end of dike		61	60	..	...	230	12	9.5	0	50	---
Lower Merwin Res 300 yds. from mouth		61	61	...	60 "t"	278	7	8.2	16	110	---

Stream	River Mile	Temperature °F Air	Temperature °F Water	Coliform Count (Total)	Turb.	Spec. 1/ Cond.	Dis. 02 mg/l	ph	CO_2 mg/l	Total Alkalinity mg/l Ca	Nitrate CO_2 mg/l
Price Valley Res., end of plank		58	54	0	15 ntu	750	9	9.3	0	40	
Marsh Res., at willows along dam		63	58	...	10 ntu	130	12	9.7	0	40	...
Forest Boundary Res., at big ponderosa pine		52	52	75	9 ntu	165	10	9.1	0	10	...
Reynolds Pond, at small dam		42	52	1	15 ntu	62	9	9.3	0	10	

1/ Micromohs per centimeter.

2/ Numbers in parenthesis () are range of temperatures recorded.

Appendix M. Summary of Soil Characteristics, Brothers Portion

Soil Series	Depth[1] (inches)	Permeability[2]	Runoff[3]	Erosion Hazard[4] Water	Wind
Brothers portion					
Borow	20 - 40	moderate rapid to moderate slow	very slow	slight	severe
Swaler	60	very slow	very slow	slight	moderate
Willowdale	60	moderate	slow	moderate	slight
Canest	O-10	slow	rapid	moderate	slight
Choptie	1O-20	moderate	medium	moderate	slight
Blayden	12-20	moderate	medium	moderate	slight
Embal	60 +	moderate	very slow	slight	moderate
Ratto	1O-20	slow to very slow	slow	slight	slight
Deschutes	20-40	moderate rapid	very slow	slight	moderate
Houstake	40 +	rapid to very slow	very slow	slight	severe
Statz	1 0-20	moderate rapid to very slow	very slow	slight	moderate
Dester	20-40	moderate slow to very slow	slow	slight	moderate
Gardone	40 - 60	rapid	slow	slight	severe
Stookey	20 - 40	rapid to moderate	slow	slight	severe
Anawalt	10 - 20	slow	slow	slight	slight
Bieber	10-20	slow	medium	moderate	slight
Varco	IO-20	slow	medium	moderate	slight
Day	40 - 60	very slow	rapid	severe	slight
Simas	60	slow	rapid	severe	slight
Menbo	20 - 40	slow	medium	moderate	slight
Westbutte	20 - 40	moderate	medium	moderate	slight
Lorella	IO-20	slow	rapid	severe	slight
Redcliff	20 - 40	moderate	medium	severe	slight
Stukel	10-20	moderate	rapid	severe	slight
Madeline	IO-20	slow	medium	moderate	slight
LaPine portion					
Chinchallow	60 +	slow	very slow	slight	slight
LaPine	60 +	rapid	very slow	moderate	moderate
Stieger	60 +	rapid	very slow	slight	slight
Shanahan	60 +	rapid to moderate	very slow	slight	slight

1/ Depth in inches of soil profile and/or depth to which plant root would penetrate soil profile.
2/ The rate at which water and air may move through the soil profile.
3/ Relative rate that water flows off soil surface.
4/ Susceptibility of the soil to erode when no cover is present.

Appendix N. Wildlife Habitat Interrelationships

Common Name	Rel. Abundance	1 Juniper Grass	2 Bunch Grass	3 Crested Wheatgrass	4 Big Sage Grass	5 Low Sage Grass	6 Other Brush	7 Junip. Bitterbrush	8 Junip. Big Sage	9 Junip. Low Sage	10 Riparian	11 Mtn. Mahogany	12 Pond. Pine	13 Fir Pine Mixed	14 Oak Grass	15 Wet Meadow	16 Lodgepol Bitterbrus Gras
Life Form 1 Reproduces in water and feeds in water (34 species).																	
Brook Trout	U												RFXP				
Black Crappie	U										RFXP						
Bluegill	C										RFXP						
Bridgelip Sucker	C										RFXP						
Brown Bullhead	C										RFXP						
Brown Trout	R										RFXP						
Carp	U										RFXP						
Channel Catfish	R										RFXP						
Chiselmouth Chub	C										RFXP						
Chinook Salmon	U										RFXP						
Coho Salmon	U										RFXP						
Cutthroat Trout	U										RFXP						
Dolly Varden	U										RFXP						
Kamloop Trout	R										RFXP						
Large Scale Sucker	C										RFXP						
Largemouth Bass	C										RFXP						
Leopard Dace	C										RFXP						
Longnose Dace	U										RFXP						
Mountain Whitefish	C										RFXP						
Northern Squawfish	C										RFXP						
Painted Turtle	U										RFXP						
Peamouth	C										RFXP						
Piute Sculpin	U										RFXP						
Pumpkinseed	R										RFXP						
Rainbow Trout	V										RFXP						
Redside Shiner	C										RFXP						
Smallmouth Bass	C										RFXP						
Sockeye Salmon	U										RFXP						
Speckled Dace	C										RFXP						
Steelhead Trout	C										RFXP						
Tui Chub (Roach)	C										RFXP						
Umatilla Dace	R										RFXP						
Western Brook Lamprey	U										RFXP						
White Crappie	U										RFXP						
Bullfrog	U										RFXP						
Brook Trout	U										RFXP						
Three spined Stickleback	U										RFXP						
Tui Chub	U										RSXP						
Life Form 2. Reproduces in water and feeds on the ground, in bushes, and/or in trees (7 species)																	
Great Basin Spadefoot	U			RFXP		RFXP		RFLP									FL
Northern Long Toed Salamander	R			RFLP				RFLO	RFLO			RFXO	RFXO		FLO	RFXP	FL
Pacific Tree Frog	C			RFLO	RFXO		RFXO	RFLO	RFLO		RFXP	RFLO	RFXP	RFXP	FLP	RFXP	FX
Spotted Frog	C				RFXO				RFLO	RFLO	RFXP		RFLO	RFLO		FLD	FX
Western Toad	U			RFLO	RFXO		RFXP	RFLO	RFLO		RFXP	RFLO	RFLO	RFLO	FLD	RFXP	RF
Life Form 3. Reproduces on the ground around water (or in emergent vegetation, or on floating vegetation) and feeds on the ground and in bushes, trees and water (63 spe																	
Common Garter Snake	C	RFXO	RFXO		RFXP		RFXP				RFXP		RFXO	RFXO	RFLD	RFLO	RF
Western Skunk	U	RFLO			RFLO		RFLO	RFLO	RFLO		RFXP	RFLO	RFXP	RFLP	RFLP		RF
American Avocet	U		RLO								RFXP					RFLP	
American Bittern	R										RFXP					RFLO	
American Coot	C					FXO					RFXP					FXO	
American Dipper	R										RFXP						
American Wigeon	U		FLO											RFXP		RFLP	

Common Name	Rel. Abundance	1 Juniper Grass	2 Bunch Grass	3 Crested Wheatgrass	4 Big Sage Grass	5 Low Sage Grass	6 Other Brush	7 Junip. Bitterbrush	a Junip. Big Sage	3 Junip. Low Sage	10 Riparian	11 Mtn. Mahogany	12 Pond. Pine	13 Fir Pine Mixed	14 Oak Grass	15 Wet Meadow	16 Lodgepole Bitterbrush Grass
Bairds Sandpiper	E										RFLP			RFLP		RFLP	
Black Tern	U		RLP								FLP					FLO	
Black Bellied Plover	E										FLP					FLO	
Black Necked Stilt	R										RFLP					RFLO	
Blue Winged Teal	U		RFLO								RFXP					RFLP	
Cackling Goose	U										RFXP					RFXP	
California Gull	U		RLP								RFXP					FLO	
Canada Goose	C										RFXP					RFXP	
Canvasback	R										FXP						
Cinnamon Teal	R		RFLO								RFXP					RFLO	
Common Loon	R										FXP						
Common Pintail	C		RFLO								RFXP					RFXP	
Common Snipe	R										RFXP					RFXP	
Common Yellowthroat	R										RFXP					RFLO	
Double Crested Cormorant	E										RFXP						
Eared Grebe	R										RFXP						
European Wigeon	E										FLP					FLO	
Forsters Tern	R		RLP								RFLP		FLO			FLO	
Franklins Gull	E		RLP								RFLP		FLO			FLO	
Gadwall	R		RFLP								RFXP					RFLP	
Greater Scaup	U										RFXP						
Greater Yellowlegs	U										RFLP					RFLP	
Green Winged Teal	C		RFLO								RFXP					RFXP	
Harlequin Duck	E										FLP						
Horned Grebe	E										RFXP						
Killdeer	C										RFXP					RFXP	
Least Sandpiper	R										RFLP					RFLP	
Lesser Scaup	C										RFXP						
Lesser Snow Goose	R										FXP					FXP	
Lesser Yellowlegs	U										RFLP					RFLP	
Long Billed Curlew	R		RFXP								FXP					FXP	
Long Billed Dowitcher	C										RFXP					RFLO	
Mallard	V		RFXO								RFXP					RFXP	
Marbled Godwit	E		RLP								RFLP					RFLP	
Marsh Wren	R										RFXP					RFLO	
Northern Shoveler	U		RFXO								RFXP					RFLP	
Pied Billed Grebe	U										RFXP						
Redhead	U										RFXP						
Ring Billed Gull	U		RLP									RFLP		FLO		FLO	
Ring Necked Duck	U										RFXP						
Ruddy Duck	U										RFXP						
Sanderling	R										RFLP					RFLO	
Sandhill Crane	R					FLO					RFXP					RFXP	
Small Canada Goose	U										RFXP					RFXP	
Snowy Plover	E										RFLP						
Spotted Sandpiper	C										RFXP					RFXO	
Trumpeter Swan	E										FXP					FXP	
Western Grebe	R										RFXP						
Western Sandpiper	R										RFLP					RFLP	
Whistling Swan	U										RFXP					RFXP	
White Pelican	R										FXP						
White Fronted Goose	R										FXP					FXP	
Willet	U										RFXP					RFXP	
Winter Wren	U										FXO		RFXP	RFXP			RFLO
Western Jumping Mouse	U		RFLO								RFLP		RFLP	RFLP		RFLP	RFLO

Common Name	Rel. Abun-dance	1 Juni-per Grass	2 Bunch Grass	3 Crested Wheat-Grass	4 Big Sage Grass	5 Low Sage Grass	6 Other Brush	7 Junip. Bitter-brush	8 Junip. Big Sage	9 Junip. Low Sage	10 Ripar-ian	11 Mtn. Mahog-any	12 Pond. Pine	13 Fir Pine Mixed	14 Oak Grass	15 Wet Meadow	16 Lodge pole Bitter-brush Grass
Life Form 4 Reproduces in cliffs caves, rimrock and or talus and feeds on the ground or in the air (24 species)																	
Side Blotched Lizard	C	RFLP	RFXP	RFLO	RFXP	RFXP	RFXO	RFLO	RFXP	RFXP	RFLO					RFLO	
Barn Swallow	U		FLO		RFLP			FLO	RFLO		RFLP	FLO				FLP	
Canyon Wren	U		RFXP		RFLO	RFLP	FLO	FLO			RFXP	FLO			FLO		
Chukar	C		RFXO		RFXP	FLO	RFXP	RFLO			FXP						
Cliff Swallow	C		FLO		RFLP	FLO	FLO	FLP	FLP	FLO	RFLP	FLO			FLP	FLP	RFXP
Common Raven	V	RFXP	RFXP	FXO	RFXP	RFXP	RFXP	RFXP	RFXP	RFXP	RFXP	RFXP	RFXP	RFXP	FLP	RFXP	RFXP
Ferruginous Hawk	C	RFLO	RFLP	FLO	FLO		FLO	RFLO	RFLO	RFLO	RFXO	RFXO	RFLO	FXP		FXP	
Golden Eagle	C	RFXO	FXP	FLO	FXP	FLO	FLO	RFXO	RFXO	RFLO	RFXP	FLO	RFXO	RFXO	FXO	FLO	FLO
Peregrine Falcon	E	FLO	FLO		FLO	FLO	FLO	FLO	FLO	FLO	FXP	FLO	FLO	FLO	FLO	FLO	FLO
Prairie Falcon	U	RFLO	RFXP	FLO	RFXP	RFXO	RFXO	RFXO	RFXO	RFXO	FXP	FLO	RFLO	FLO		FLO	
Rock Dove	C		RFXP	FLO	RLP	RFLP					RFLP					FLO	
Rock Wren	U		FLO		RFLP	RFLP	RFLO				RFLP	FLO			FLO		
Says Phoebe	U	RFLP			FLP	FLO		FLP	RFLP	RFLP	RFLP	FLP	RFLP		FLP		
Turkey Vulture	C	FXO	FXP	FLO	RFXP	FXO	FXO	RFXP	RFXP	RFXP	FXP	FLP	RFXO	RFXO	FLP	FLO	
Bobcat	U	RFXP	FLP	FLO	RFXP	RFLP	RFXP	RFLP	RFLP	RFLP	RFXP	RFLP	RFXO	RFLO	RFLP	FLP	RFXP
Bushy Tailed Woodrat	C	RFXP	FXO		FXP	FXO	FLO	RFXP	RFXP	RFXO	FLO			RFXO			RFXP
Canyon Mouse	U	RFLO	RFLP		RFXP			RFLO	RFLO		RFLO						
Mountain Lion	E		FLP		FXO		FLO			FLO	FXP	RFXP	RFXP	RFXP	RFLP	FLO	RFLO
Pallid Bat	R	FLO			RFLP	FLO		RFLP	RFLP	FLO	RFLP					FLO	
Pinon Mouse	C				RFXO		RFLO	RFLO	RFXP	RFLO		RFLO			RFLO		
Small Footed Myotis	R				RFLP	FLO					RFLP						
Townsend Big Eared Bat	R	RFXP	RFLP		RFXP	RFLO	RFXP	RFXO	RFXP	RFLO	RFXP					RFXO	
Western Pipistrelle	U				RFLP		RFLO		FLO		RFLP						
Yellow Bellied Marmot	C	RFLO	RFXP	RFLO	RFXP	RFLO	RFXP	RFLO	RFXP	RFLO		RFLO	RFXO			RFXP	
Life Form 5 Reproduces on the ground without specific water, cliff rimrock or talus association and feeds on the ground (40 species)																	
Desert Nightsnake	E		RFLP	FLO	RFLP	RFLP	FLO					FLO				FLO	
Gopher Snake	C	RFXP	RFXO		RFXP	RFLO	RFXP	RFXP	RFXP	RFXO	RFXP				RFLP	RFXP	RFLO
Great Basin Whiptail	U										RFLP		RFLO				
Northern Pacific Rattlesnake	C	RFXP	RFXP	RFXO	RFXP	RFXO	RFXP	RFXO	RFXP	RFXO	RFXP	RFXO	RFXO	FLO	RFLP	FXO	RFXO
Oregon Alligator Lizard	U		RFLO	RFLP		RFLO	RFLO					RFLP	RFLP	RFLP	RFLP		
Pigmy Horned Lizard	U	RFLO	RFLO		RFLP	RFLP		RFLO	RFXP							RFLO	RFLO
Sagebrush Lizard	C	RFXP	RFLO		RFXP	RFLO	RFLO	RFLP	RFLP	RFLO		RFLO			RFLO		
Striped Whipsnake	R	RFLO	FLO		RFXP	RFLP	RFLO	RFLP	RFLO				RFLP		RFLP		
Wandering Gartersnake	U		RFLP		RFLO		RFLP	RFLO	RFLO	RFLO	RFXP				RFLO	RFLP	
Western Fence Lizard	C	RFXP	RFXP	RFLO	RFXP	RFXP	RFLO	RFLO	RFLO	RFXP		RFLO	RFLO		RFLP		
Western Yellow Bellied Racer	C		RFLP		RFLP	RFLP		RFLO	RFLP	RFLO	RFLP				RFLP	FLO	
Bobolink	R										RFLP					RFLP	
California Quail	C	RFLO			RFXP		RFXP	RFLO	RFXP	FLO	RFXP				RFLP		
Gray Partridge	E		RFXP				RFXP				RFLO						
Hermit Thrush	R										FXO		RFLO	RFXP	RFLO		RFLO
Horned Lark	C		RFXP	FXO		RFXP											
Lark Sparrow	C	RFLO	FLO		RFXP	RFLO			FLO	FLO	RFLP				RFLP	FLP	
Marsh Hawk	C	FLO	RFXP	FLO	FXP		RFLP				RFLP					RFXP	
Mountain Quail	R						RFXP				RFXP		RFXP	RFXP	FLP		
Northern Junco	C				RFXP	RFLO	RFXP	RFLP	RFLP	RFLO	RFLP	FLO			FLP	RFLP	RFXP
Ring Necked Pheasant	U		RFXP		RRXP		RFXP				RFXP						
Ruffed Grouse	R						RFXP				RFXP		RFXO	RFXP	RFLP		FXO
Sage Grouse	U		FXP	FXO	RFXP	FLO	FLO		FLO	FLO	FLP					FXP	
Savannah Sparrow	C	FLO	RFXP		RFLO	RFXP			FLP	FLO	FLO				RFLP	FLO	
Short Eared Owl	R		FXP	FLO	FLP	FLO	FLO	RFLO	RFXP		RFXP				FLO	RFLO	

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Turkey	R		FLO				RFXP				FLP		RFXP	RFLO	RFXP	FLO	
Veery	R										RFLP	FLO				FLO	
Vesper Sparrow	C	FLP	RFLP		RFLO	RFLP	FLO		FLO		FLO				RFLP	FLO	
Water Pipit	R										FLO					FLO	
Western Meadowlark	C	RFXO	RFXP	FLO	RFXO	RFXP	RFLO	RFXO	RFLO	RFXO	FLP				RFXP	FXP	
Wilsons Warbler	R				FLO		FLO				RFLP					FLO	
Black Tailed Deer	U										FLP			RFLP			
Black Tailed Jackrabbit	C	RFXO	RFXO	FLO	RFXP	RFXP	RFLO	RFXO	RFXO	RFLO	FLP					FLP	RF
Feral Horse	R		RFLP	FLO	RFXP	FLO	RFLP	RFLP	RFLP	RFLO	FXP		RFXP	RFXP		RFXP	RF
Feral House Cat	R	RFLP	RFLP		RFXP		RFLO	RFLP	RFLP		RFLP					FLP	RF
Pronghorn Antelope	C	RFXO	FXO	FXP	RFXP	RFXP		FXP	RFXP	RFXP		FLO	FLO				
Rocky Mountain Elk	U				FLO	FLO	RFLO				RFXP	FLO	RFXP	RFXP	RFXP	FLP	RF
Rocky Mountain Mule Deer	V	RFXP	RFXO	FXP	RFXP	FXP	RFXP	RFXP	RFXP	FXO	FXP	FLO	RFXP	RFXP	RFLP	FXP	RF
Snowshoe Hare	R										FLO			RFLP			RF
White Tailed Jackrabbit	E	RFLO	RFXP		RFLO		FLO	FLO	FLO	FLO	FLP						
Life Form 6 Reproduces on the **ground** and feeds in bushes, tree, or the air (8 species)																	
Common Nighthawk	U	RFLP	FLP		RFLP	RFLP		RFLO	RFLP	RFLO	FLP	RFLO			RFLO	FXP	
Common Poor Will	R	FLP	FLP		RFLP	RFLP		FLO	FLO	FLO	FLP				RFLO	FLP	
Lincolns Sparrow	C				RFXP	FLOP	RFXP				RFXP				RFLO		
Nashville Warbler	E										RFLP			RFLP	RFLP		
Orange Crowned Warbler	R										RFLP				RFLP		
Snow Bunting	E															FLO	
Townsends Solitaire	C	RFXP	FLO		RFXP			RFXO	RFXP		FXP				FLP		
Porcupine	C	RFXP			RFXO		RFLO	RFXO	RFXO		RFXO	RFXO	RFXP	RFXP		FLO	RF
American Robin	V	FXP	FXP	FXO		RFXO		RFXP	RFXP	RFXP	RFXP		FLO	FLO	RFLO	FXO	RF
Black Billed Magpie	C	FXP	FXO	FXO	RFXP	FXO	RFXP	FXO	RFXP	RFXO	RFXP	RFXO	FLO	FLO	RFLP	FXO	RF
Black Crowned Night Heron	R										RFXP				RLO	FLO	
Black Throated Sparrow	E	FLO	FLO		RFLP		RFLP		RFLO		RFLO				RFLP	FLO	
Brewers Blackbird	V	FLO	FLO		RFXO	FLO	FLO		FLO		RFXP		FLO		RFLP	RFXP	
Brewers Sparrow	U		FLO		RFXP	FLO	RFLP	RFLO	RFLP		FLO						
Broad Tailed Hummingbird	R						RFLO				RFLP					FLP	
Brown Headed Cowbird	C		FLO		RFLO		FLO		RFXO		RFXP		RFXO	RFXO	RFLP	RFXP	
Calliope Hummingbird	R		FLO						RFLP	RFLP		FLO	RFLO	RFLO		FLP	
Chipping Sparrow	U	FLO	FLO		RFLP		RFLO	RFLO	RFLP	RFLO	RFLP	RFLO	RFLO	RFLO	RFLP	FLO	
Common Redpoll	R	FLO							FLP					FLP	FLP		
Eastern Kingbird	U	FLP	FXP		RFXP			RFXP	RFLP	RFXO	RFLP				RFLO		
Fox Sparrow	U						FLO				RFLP	FLO	RFXP	RFXP	RFLP		
Gray Flycatcher	R		FLO		RFXP	FLO	RFLO	RFLP	RFXP	FLO	RFLP	FLO	FLO				
Green Tailed Towhee	R				RFLP			RFLP	RFXP		FLO		FLO		RFLP		
Lazuli Bunting	R						RFLO		FLO		RFLP				RFLP		
Lesser Goldfinch	R						RFXO				RFXP				RFLP		
Loggerhead Shrike	C	FLO	FLO	FLO	RFLP	RFLO		RFLO	RFLP	RFLO	FLO	FLO	FLO		RFLP	FLO	
Macgillivrays Warbler	U						RFLO				RFXP				RFLP		RFX
Northern Shrike	C	FLO	FXP	FXO	FXP	FLO	FLP	FLO	FLP	FXO	FLO	FLO	FLO	FLO	FLP	FLO	FLO
Red Winged Blackbird	V										RFXP				FLP	RFXP	
Rufous Sided Towhee	R				RFLP		RFLO		RFLO		RFXP			RFLO	RFLO		
Sage Sparrow	U			RFXP	RFXO	RFLO	RFLO	RFLP	RFXO								
Sage Thrasher	U		FLO	FLO	RFXP	FLP	RFLO	RFLP	RFLP	FXO	RFLP	FLO					
Song Sparrow	C	FLO			RFXP	RFLP		RFXP	RFXP		RFLP			FLO	RFLO	FLO	
Swainsons Hawk	C	RFXP	FXP		FLO	FLP	FLO	RFLO	RFXP		RFXP		RFLO	RFLO		FXP	
Swainsons Thrush	R				FLO		FLO				RRXP		RFLP	RFLP			
Tree Sparrow	E		FLO		RFLP		RFLP				RFLO					FLO	
White Crowned Sparrow	C	FLO			RFXP		RFXP		FXP	FXO	RFLO				FLP		
Yellow Headed Blackbird	C										RFXP					FLO	

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Life Form 8. Reproduces in bushes and feeds in trees, bushes, or the air (5 species)																	
American Goldfinch	U		FLO				RFLO	FLO	FLO		RFXP		RFXO		RFLO		
Bushtit	R						FLO	RFLO	RFLP		RFLP		FLO		RFLP		
Dusky Fly Catcher	U		FLO				RFLO	RFLP	RFLP	RFLO	FLO		FLO	FLO	RFLP		
Yellow Warbler	C				FLO			FLP	FLP		RFXP						
Yellow Breasted Chat	R				FLP		RFLO				RFLP			FLO			
Life Form 9 Reproduces primarily in deciduous trees and feeds in trees, bushes, or the air (5 species)																	
American Redstart	E										RFXP						
Bohemian Waxwing	R							FLO	FXP	FLO	FLP		FLP	FLO			
Cedar Waxwing	U						RFLP	FLO	FXP	FLO	RFLP			FLP			
House Finch	C						RFLP		FLP		RFLP		FLO	FLO	RFLP		
Northern Oriole	R								RFLO	FLO	RFXP		FLO	FLO	RFLP		
Life Form 10 Reproduces primarily in conifers and feeds in trees, bushes, or the air (12 species)																	
Black Throated Gray Warbler	R	RFLO					RFLP		RFLP					RFLP	RFLP		
Clarks Nutcracker	E				FXO								RFXP	RFXP			
Golden Crowned Kinglet	R												FLP	RFLP	FLO		RFLO
Olive Sided Flycatcher	R										FLP		RFLP	RFLP	FLP		FLO
Pinyon Jay	U				FXP			RFXP	RFXP	RFLO	FXP		FLO				FLO
Red Crossbill	R												FLP	RFXP			RFLO
Ruby Crowned Kinglet	R												FLP	RFXP	FLP		RFLO
Townsends Warbler	U										RFLO		FLP	RFLP	FLP		FLO
Western Flycatcher	R										RFXP		RFLP	RFLP	RFLP		RFLO
Western Tanager	U							FLO	FLO		RFXP		RFXP	RFXP	FLO		RFXO
Yellow Rumpled Warbler	U										RFXP		FLO	RFXP	RFLP		RFLO
Douglas Squirrel	C										FLO		RFXP	RFXP			RFXP
Life Form 11 Reproduces in conifers or deciduous trees and feeds in trees, in bushes, on the ground or in the air (13 species)																	
Black Headed Grosbeak	U										RFLP		RFLP	RFLP	RFLP		FLO
Cassins Finch	R							RFLO	RFLO		RFLP		RFLP	RFLP	FLO		RFLO
Common Crown	U		FLO				FLO	RFLO	RFXO	FLO	RFXP		RFXP	RFXP	RFLP	FLO	FLO
Coopers Hawk	R							FLO	FLO	FLO	RFXP	FLO	RFXP	RFXP	RFLP		RFXP
Evening Grosbeak	C							FLO	FXO	FLO	RFXP		RFXP	RFLP	FLP		RFXO
Goshawk	R							FLO	FLO	FLO	FXP		RFXP	RFXP	FLO		RFXO
Gray Jay	U								FLO		FLO		RFXP	RFXP			RFXP
Hammonds Flycatcher	U	FLO	FLO						FLO	FLO	FLP		RFXP	RFLP			RFLO
Long Eared Owl	R	RFXP	RFXP					RFLO	RFXP		RFXP		FLO	RFLO		FLO	RFLO
Merlin	E		FXP						FLO		FLP	FLO	FLP	RFLP	FLP	FLO	RFLO
Mourning Dove	V	RFXP	FXP	FLO			FLO	RFXP	RFXP	RFLO	RXP		RFLO		RLP	FLO	
Pine Grosbeak	E										RFLP		RFXP	RFXP		FLO	RFLP
Pine Siskin	R		FLO								FLP		RFLP	RFLP	RFLO		RFLP
Purple Finch	U							RFLO	RFXO		RFLP		RFLP	RFLP	RFLO	FLO	
Red Eyed Vireo	E						FLO				RFLP		FLO				
Rufous Hummingbird	U		FLO								FLP		RFXP	RFLP	FLO	FLO	RFXC
Sharp Skinned Hawk	R							FLO	FLO	FLO	FXP	FLO	RFXP	RFXP	RFLO	FLO	RFLC
Solitary Vireo	U										FLP		FLP	RFLP	RFLP		RFLC
Stellars Jay	C							FLO	FXO	FXO	RFLO		RFXP	RFXP	FLP		RFLC
Varied Thrush	U											FLP	RFXP		FLP		RFLP
Warbling Vireo	U						FLO				RFLP		FLO		RFLP		
Western Kingbird	U				RFXP	FLO	RFLO	RFLO	RFXP	RFXO	RFXP				RFLP		
Western Wood Peewee	U		FLO						FLO	FLO	RFXP		RFLP	RFLP	RFLP		RFLP
Willow Flycatcher	U	FLO	FLO						FLO	FLO	FLP		RFLP	RFLP			
Hoary Bat	E							RFLO	RFLO	RFLO	RFLP		RFLP	RFLP			FLO

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Life Form 12 Reproduces on very thick branches, feeds on the ground or in the water (10 species)																	
Bald Eagle	R	FXO	FXP						FXP		FXP		FLO	FLO		FXP	FLO
Common Egret	E										FLP						
Golden Eagle	C	RFXO	FXP	FLO	FXP	FLO	FLO	RFXO	RFXO	RFLO	RFXP	FLO	RFXO	RFXO	FXO	FXP	FXO
Great Blue Heron	U										RFXP						
Great Horned Owl	C	RFXO	FLP	FLO	FLP	FLO	FLO	RFLO	RFXO	FLO	RFXP	FXO	RFXP	RFXP	RFLA	FLO	RFXO
Green Heron	E										FLP						
Osprey	R										RFXP		RXP	RLO	RLA		
Red Tailed Hawk	C	RFXP	FXP	FXO	FXP	FXO	FLO	RFXP	RFXP	RFXO	RFXP	FLO	RFXO	RFXO	RFLP	FXO	RFXO
Roughlegged Hawk	C	FLO	FLP		FLO						FLP		FLO	FLO		FXO	FXO
Snowy Egret	E										FLP						
Great Gray Owl	E										FLO		RFLO	RFLO		FLP	RFLO
Life Form 13 Reproduces in own hole excavated in tree and feeds in trees, in bushes, on the ground, or in the air (13 species)																	
Blackbacked Threetoed Woodpecker	R												FLP	RFXP	RFLP		RFLO
Common Flicker	C	RFXP	FXO		FXO	FXO	FXO	RFXP	RFXP	RFXP	RFXP	FLO	RFXP	RFXO	RFLP		
Downy Woodpecker	U								RFLO		RFXP		FLO		FLO		
Hairy Woodpecker	R										RFXO		RFXP	RFLP	FLO		RFLO
Lewis Woodpecker	U	RFLO						RFLO	RFXO		RFXP		RFXP	RFXP	RFLP		
Northern Threetoed Woodpecker	R												FLO	RFXP	FLO		
Pileated Woodpecker	E												RFXP	RFXP	RFLO		
Pygmy Nuthatch	R												RFXP	RFXP			
Red Breasted Nuthatch	R												FXP	RFXP	RFLO		RFLO
Red Napped Sapsucker	C										RFXP		RFXP	RFXP	RFLP		
White Breasted Nuthatch	R										—		RFXP	RFXP	RFLP		
White Headed Woodpecker	R												RFXP	RFXP			
Williamsons Sapsucker	R									RFXO			RFLP	RFLP			
Life Form 14 Reproduces in a hole made by another species or in a natural hole and feeds on the ground, in water or the air (36 species)																	
American Kestrel	V	RFXP	FXP	FXO	FXP	FXO	FXP	RFXP	RFXP	RFXO	RFXP	FLO	RFXO	RLO	RFLP	FXP	RFLO
Ash Throated Flycatcher	U		FLO					RFLP	RFXP		RFLP		RFLO		RFLP		
Barn Owl	U	RFLO	FLO	FLO			FLO	RFLO	RFLP	RFLO	RFXP		RFLO	RFLO	RFLO	FLO	
Barrows Goldeneye	R												RFLO				
Black Capped Chickadee	R				FLO		FLO		RFLO		RFXP		RFXO		RFLO		
Brown Creeper	U										RFLO		RFXP	RFXP	FLO		
Buffllehead	U												RLO				
Common Goldeneye	U										RFXP	RLO					
Common Merganser	C										RFXP						
Flammulated Owl	E												RFXP	RFXP	RFLP		
Hooded Merganser	R										RFXP		RLO	RLO			
House Sparrow	C	RFXP	FLO		RFLP		—	RFXP	RFXP	RFXO	RFXP				RFLO		
House Wren	C						FXP				RFXP		RFXP	RFLP	RFLP		

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Mountain Bluebird	C	RFXP	EXP	FXO	FXP	FLO	FLO	RFXP	RFXP	RFXO	RFXP	FXO	RFXO	RLO	FLP	FXP	
Mountain Chickadee	C						FLO		FXO	FLO	RFXP		RFXP	RFXP	RFLO		
Pigmy Owl	R	RFLP					FLO		RFLP	RFLO	RFLP		RFLP	RFLP		FLO	FLO
Red Breasted Merganser	R										RFXP						
Saw Whet Owl	R										RFLP		RFXP	RFLP			RFLO
Screech Owl	R	RFXP	FLP			FLP	FLP	RFLO	RFXP	RFLP	RFLP		FLO		RLP	FLP	RFLO
Starling	V	RFXP	FXO					RFXP	RFXP	RFLO	RFXP					FXP	
Tree Swallow	C	RFLO						RFXO	RFXP	FLO	RFXP		RFXO	RFXO	RFLO	FXP	
Vauxs Swift	U										RFLP		RFLP	RFLP	FLO	FLP	RFLO
Violet Green Swallow	C										RFXP		RFXO		FLO	FXP	
Western Bluebird	U	RFLP	FLP	FLO	FXP	FLO	FLO	RFLP	RFXP	RFLO	RFXP	FLO	RFLO	RLO	RFLP	FLP	
Woodduck	R										RFXP		RLO	RFLO	RFLP		
Big Brown Bat	R	RFLO						RFLO	RFLO	RFLO	FLP		RFLP	RFLP		FLP	FLO
California Myotis	R	FLO							FLO	FLO	FLP		RFLP	RFLP		FLP	FLO
Fringed Myotis	R	RFLO						RFLO	RFLO	RFLO	FLP	RFLP		RFLP	RFLP		
Little Brown Myotis	R	RFXP							RFLP	RFLO	FLP	FLO	RFLP	RFLP			FLO
Long Eared Myotis	R	FLP						FLP	FLP	FLO	FLP		RFLP	RFLP			FLO
Long Legged Myotis	R	FLP						FLP	FLP	FLO	FLP		RFLP	RFLP	RFLP		FLO
Marten	E													RFXP			RFLO
Northern Flying Squirrel	R												RFXP	RFXP			RFXP
Raccoon	U										RFXP			RFXP	RFLP		
Silver Haired Bat	R	FLO						FLO	FLO	FLO	FLP		RFLP	RFLP	RFLP	FLP	FLO
Yuma Myotis	R	FLP			FLP				FLP	FLO	RFLP	FLO			RFLP	FLP	
Life Form 15 Reproduces in a burrow underground and feeds on the ground or under it (35 species)																	
Rubber Boa	R				RFLO						RFLP		FLO	RFLP	RFLO	RFLP	FLO
Burrowing Owl	U	RFLO	RFXP	RFXO	FLO	RFXO	FLO	FLO	FLO	RFLO							
Badger	C	RFXP	RFXP	RFXO	FXO	FXO	RFXP	RFXP	RFXP	RFXO	FXP		RFXO	RFXO	RFLP	RFXP	RFXO
Belding Ground Squirrel	V	RFXO	RFXO	RFXO	RFXO				RFXO		RFXP						RFXO
Black Bear	R						FLO				FLP		RFLP	RFXP	RFLP	FLO	RFXO
California Ground Squirrel	V		RFXO		RFXP		RFLO		RFXP		RFXO		RFLO		RFXP		
Coast Mole	E		RFLP								RFXP		RFLP	RFLP		RFXP	RFXO
Coyote	V	FXO	FXP	FXO	RFXP	RFXO	RFXP	RFXP	RFXP	RFXO	RFXP	RFXO	RFXP	RFXP	RFLP	RFXP	RFXP
Dark Kangaroo Mouse	E				RFLP				RFLP								
Deer Mouse	V	RFXP	RFXP	RFXO	RFXP	RFXO	RFXP	RFXP	RFXP	RFXP	RFXP	RFXO	RFXP	RFXO	RFLP	RFXP	RFXP
Golden Mantled Ground Squirrel	C		RFXP			FLO		RFXP	RFXP	RFXP	RFLO	RFXO	RFXP	RFXP			RFXP
Great Basin Pocket Mouse	C	RFXP			RFXP	RFXO		RFXP	RFXP	RFXO							
Heather Vole	E																
House Mouse	C						RFLP				RFLP					RFXP	RFXO
Least Chipmunk	U	RFLO			RFXP	RFLO		RFLO	RFLP	RFLO					RFLP		RFXP
Long Tailed Vole	E	RFLO	RFLO								RFLP		RFLO	RFLO		RFLP	
Longtail Weasel	U	RFLP	RFLO	FLO	RFLP	FLO	RFLP	RFLP	RFLP	RFLO	RFLP		RFLO	RFLO		RFLO	RFXP
Merriam Shrew	E				RFLP		RFLO										
Montane Vole	C		RFXP		RFXO			RFLO	RFLO		RFXP					RFXP	
Mountain Cottontail	C	RFXP	FXP	FLO	RFXP	RFXO	RFXP	RFXP	RFXP	RFXO	RFXP	FLO				FXP	
Northern Grasshopper Mouse	U				RFLP				RFLP	RFLP							
Northern Pocket Gopher	V	RFXP	RFXP	RFXO	RFXP	RFXO	RFXO	RFXP	RFXP	RFXO	RFXP	RFXO	RFXP	RFXP	RFLO	RFXP	RFXO
Ord Kangaroo Rat	C	RFXO		RFXO	RFXP			RFXO	RFXP								
Pinon Mouse	C				RFXO		RFLO	RFLO	RFXP	RFLO		RFLO					
Pygmy Rabbit	E				RFLP												
Sagebrush Vole	U		RFLP		RFLP			RFLO	RFLP	RFLO							
Shorttail Weasel	U										RFLP		RFXP	RFXP			RFLO

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Southern Red Backed Mouse	R												RFLO	RFLP			
Spotted Skunk	R						RFLP				RFLP		RFLO	RFLO			
Striped Skunk	U						RFLP				RFLP				RFLP	RFXP	
Townsend Ground Squirrel	C	RFXP	RFXP	RFXO	RFXP	RFXO		RFXP	RFXP	RFXO	RFXO					RFXO	
Vagrant Shrew	U										RFLP					RFXP	
Washington Ground Squirrel	U		RFLP		RFXP		RFLO		RFXP		RFXP		RFLO		RFXP		
Western Harvest Mouse	U		RFXP		RFXP		RFLP	RFLO	RFXP		RFXP				RFLP		
Yellow Pine Chipmunk	C	RFXP			RFXP	FLO		RFXP	RFXP	RFXO	RFXP	RFLO	RFXP	RFXP			
Life Form 16 Reproduces in a burrow underground and feeds in the air or in water (9 species)																	
Bank Swallow	C										RFXP						
Belted Kingfisher	U										RFXP				FLO		
Rough Winged Swallow	C										RFXP				FLO		
Beaver	C	FXO			FXO			FXO	FXO		RFXP					FXO	FXO
Mink	C										RFXP						
Muskrat	C										RFXP						
River Otter	R										RFXP						
Water Shrew	E						FLO				RFLP						RFLO
Water Vole	E										RFLP						RFLO

Relative Abundance
V Common in this area
C Common in this area
U Uncommon in this area
R Rare in this area
E Extremely rare in this area

Species Orientation
R Species reproduces in this type of habitat
F Species feeds in this type of habitat
L Species orientation determined from literature
X Species orientation determined from observation
P Species prefers this type of habitat
O Species occasionally uses this type of habitat

Appendix 0. Areas Containing High or Unusual Recreational Values[1/]

Area Name	Location	Recreational Value	Availability of Public Access
Barlow Cave	Approximately 10 miles southeast of Bend	Cave exploration	Yes.
Redmond Cave	Approximately 1 mile south of Redmond	Cave exploration	Yes
Grizzly Mountain	Approximately 10 miles northwest of Prineville	Scenic vistas of central Oregon.	Yes. Road to top of mountain.
Fremont Canyon	Approximately 16 miles west-northwest of Redmond	Rock climbing	No legal access. Permission from landowners to cross private land required.
Powell Buttes	Approximately 8 miles southwest of Prineville	Hiking, horseback riding, scenic vistas, hunting	No legal access. Permission from landowners to cross private land required.

[1/] Not already identified in the ORV, rockhounding, visual, ACEC or wild and scenic river portions of this document.

Appendix P. ACEC Determination Procedures

Step 1 - Nomination

Eighteen areas were originally nominated for ACEC determination. Nominations came from BLM staff specialists, interested persons, conservation groups and other agencies. Anyone could nominate any area they felt should have special designation. Areas nominated ranged from isolated "last of a kind" wagon wheel ruts of an historic road to significantly larger areas having watershed and recreation management problems.

Step 2 - Interdisciplinary Review

A ten-member team of District staff evaluated each nomination. The team was composed only of BLM technical staff and consisted of advocates for range, wildlife and recreation resources, as well as specialists representing geology/minerals, soils/hydrology, archaeology, realty and natural history/botany.

Each nominated area was analyzed to determine its relevance or significance and, if it met these criteria, its appropriateness for designation. Relevance is concerned with any real, perceived or potential threats to the special values within the area. Significance deals with the importance of these values, for whom and why. The resource management situation was also reviewed. Mining claims, rights-of-way, etc. were identified and a determination was made if these could affect protection and/or management of the special values in the area.

Then, recommendation was made for each area for designation or non-designation. A recommendation for designation also specified the proposed boundary of the area. If the recommendation was for non-designation, alternative management was suggested, where appropriate. Minority opinions within the team were documented.

Step 3 - Management Review and District Manager Decision

The recommendations for each nominated ACEC were then reviewed by the District Manager, with assistance from the Resource Area Managers, the Assistant District Manager for Resources, and the ACEC team leader. Areas with a decision to propose designation are all proposed for designation in the preferred alternative. Those areas not proposed for designation were determined to not qualify as ACECs and are therefore not discussed under any alternative. They are summarized in the table below.

Management Direction for Areas Dropped from ACEC Designation

ACEC	Public Acres	Reason Dropped from Consideration	Management Direction?
Barnes Butte	160	The area was determined to lack significance.	The visual resource values will be protected by existing management. The acquisition of public foot access to this tract for casual recreation is encouraged.
Cline Buttes	31,119	The area was determined to lack significance.	Special values will be more precisely located and qualified. A detailed recreation management plan for this area is encouraged.
Glass Butte Ecological Area	420	The area was determined to lack both relevance and significance.	Future management should retain this area as a fenced enclosure to be used as a comparison area showing long-term results of extended rest from livestock grazing.
Prineville Reservoir	12,429	The area was determined to lack both relevance and significance.	A recreation management plan will be developed to resolve recreation and watershed conflicts.
Smith Rocks	1,878	Since this area is not within the state park boundary, it was determined to lack both relevance and significance.	Existing management which stresses the visually sensitive nature of this area should continue.
Tumalo Natural Area	410	The area was determined to lack relevance except for the presence of the sensitive plant *Astragalus* ***peckii.*** Since this plant would be protected within the proposed Peck's Milkvetch ACEC (the Natural Area is within the proposed ACEC boundary), and since the existing cooperative agreement with adjacent landowners spells out future management guidelines, it was decided to not designate the area as an ACEC separate from Peck's Milkvetch.	

1/ Recommendations developed by BLM ACEC review team and accepted by District Manager.

ACEC Management Direction by Alternative[1]

Area Name	Alt.	Acres Design ACEC	Land Tenure	Timber Harvest	Firewood Harvest	ORVs	Rock Hounding	Wild Horses	Livestock Grazing	Fire Suppression	Prescribed Fire	Mineral Development
Badlands	A	0	NC		NC	NC	NC	–	NC	NC	NC	NC
	B	16,680	P		NC	NC	NC	–	NC	NC	R	NC
	C	0	NC		NC	NC	NC	–	NC	NC	NC	NC
	D	16,680	P		P	R	R	–	R	R	R	R
	E	16,680	P		P	R	R	–	R	R	R	R
	F	16,680	P		P	R	P	–	P	R	P	P
Benjamin	A	0	NC		NC	NC	NC	–	NC	NC	NC	NC
	B	0	NC		NC	NC	NC	–	NC	NC	NC	NC
	C	0	NC		NC	NC	NC	–	NC	NC	NC	NC
	D	640	P		P	P	P	–	P	R	R	R
	E	640	P		P	P	P	–	P	R	R	R
	F	640	P		P	P	P	–	P	R	R	R
Forest Creeks	A	0	NC	NC	NC	NC	NC	–	NC	NC	NC	NC
	B	0	NC	NC	NC	NC	NC	–	NC	NC	NC	NC
	C	0	NC	NC	NC	NC	NC	–	NC	NC	NC	NC
	D	405	P	P	P	P	P	–	P	R	P	R
	E	405	P	P	P	P	P	–	P	R	P	R
	F	405	P	P	P	P	P	–	P	R	P	P
Horse Ridge	A	600	P		P	P	P	–	P	R	P	P
	B	600	P		P	P	P	–	P	R	P	P
	C	600	P		P	P	P	–	P	R	P	P
	D	600	P		P	P	P	–	P	R	P	P
	E	600	P		P	P	P	–	P	R	P	P
	F	600	P		P	P	P	–	P	R	P	P
Logan Butte	A	0	NC		NC	NC	NC	–	NC	NC	NC	NC
	B	802	R		NC	NC	NC	–	NC	NC	NC	
	C	0	NC		NC	NC	NC	–	NC	NC	NC	NC
	D	802	P		R	P	P	–	NC	NC	R	R
	E	802	P		P	P	R	–	NC	NC	R	R
	F	802	P		P	P	P	–	P	NC	NC	P
L. Crooked River	A	0	NC		NC	NC	NC	–	NC	NC	NC	NC
	B	2,830	P		NC	NC	NC	–	NC	NC	NC	NC
	C	0	NC		NC	NC	NC	–	NC	NC	NC	NC
	D	2,830	P		P	P	R	–	R	NC	R	R
	E	2,830	P		R	P	R	–	R	NC	R	R
	F	2,830	P		P	P	P	–	P	NC	P	P
N. Fork Crooked River	A	320	P	R	P	R	NC	–	NC	NC	P	NC
	B	7,087	P	R	R	R	NC	–	NC	NC		NC
	C		P	NC	NC	NC	NC	–	NC	NC	NC	NC
	D	6.73;	P	P	P	R	R	–	R	R	R	R
	E	6,737	P	P	P	R	R	–	R	R	R	R
	F	10,350	P	P	P	R	P	–	P	R	P	P
Peck's Milkvetch	A	160	P		P	P	NC	–	R	R	R	R
	B	3,902	R		R	R	NC	–	R	R	R	R
	C	0	R		NC	NC	NC	–	NC	NC	NC	NC
	D	3,902	P		P	R	R	–	R	R	R	R
	E	3,902	P		P	R	R[2]	–	R	R	R	R
	F	3,902	P		P	P	P	–	P	R	P	P

ACEC Management Direction by Alternative[1] (cont.)

Area Name	Alt	Acres Design ACEC	Land Tenure	Timber Harvest	Firewood Harvest	ORVs	Rock Hounding	Wild Horses	Livestock Grazing	Fire Suppression	Prescribed Fire	Mineral Development
Powell Butte	A	0	NC	–	NC	NC	NC		NC	NC	NC	[redacted]
	B	0	NC	–	NC	NC	NC		NC	NC	NC	NC
	C	0	NC	–	NC	NC	NC		NC	NC	NC	NC
	D	520	P	–	P	R	P		R	R	R	R
	E	520	P	–	P	R	P		R	R	R	R
	F	520	P	–	P	P	P		P	R	P	P
S. Fork Crooked River	A	0	NC	–	NC	NC	NC	P	NC	NC	NC	NC
	B	2,940	P	–	R	NC	NC	P	NC	NC	NC	NC
	C	0	NC	–	NC	NC	NC	NC	NC	NC	NC	NC
	D	3,140	P	–	P	P	P	P	R	R	P	R
	E	3,140	P	–	P	P	P	P	R	R	P	R
	F	3,140	P	–	P	P	P	P	P	R	P	P
Wagon Road	A	160	P	–	R	P	NC		NC	NC	R	NC
	B	160	P	–	R	P	NC		NC	NC	R	NC
	C	0	NC	–	R	NC	NC		NC	NC	R	NC
	D	160	P	–	P	P	NC		R	NC	P	R
	E	160	P	–	P	P	NC		R	NC	R	R
	F	160	P	–	P	P	NC		P	NC	P	P
Winter Roost	A	320	P	P	P	P	NC		NC	NC	P	R
	B	320	P	P	P	P	NC		NC	NC	P	R
	C	0	R	R	P	NC	NC		NC	NC	R	R
	D	320	P	P	P	P	NC		NC	NC	P	R
	E	320	P	P	P	P	NC		NC	NC	P	R
	F	320	P	P	P	P	NC		P	NC	P	P

1 For purposes of analysis only. Specific management guidelines will be included in the forthcoming Brothers/LaPine RMP Record of Decision, based on more detailed analysis and public comment. The symbols used here are:

NC- no change from existing situation

R- use is allowed but with restrictions/stipulations designed to maintain or enhance special values

P- use of this nature is prohibited

– not applicable to this area

2/ 2,522 acres R and 1,380 acres P

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Bureau of Land Management
Prineville District Office
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Prineville, Oregon 97754

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